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Consulting Scientists, Engineers, and Geologists

July 14, 2006

Mr. Craig Hunt, Ph.D., Water Resource Control Engineer
Regional Water Quality Control Board—North Coast Region
5550 Skylane Boulevard, Suite A
Santa Rosa, CA 95403

Via Overnight Mail

16017.08

**Subject: *Dioxin Sampling and Analysis Report*
 Georgia-Pacific California Wood Products Manufacturing Facility
 90 West Redwood Avenue
 Fort Bragg, California**

Dr. Hunt:

Enclosed please find a hard copy of *Dioxin Sampling and Analysis Report* for the Georgia-Pacific Corporation California Wood Products Manufacturing Facility located at 90 West Redwood Avenue, Fort Bragg, California

Please do not hesitate to call should you have any questions.

Very truly yours,

ACTON • MICKELSON • ENVIRONMENTAL, INC.



Michael A. Acton
Vice President

Enclosures

cc: Ms. Julie Raming, Georgia-Pacific Corporation
 Mr. Doug Heitmeyer, Georgia-Pacific Corporation
 Ms. Linda Ruffing, City of Fort Bragg
 Ms. Kay Johnson, Tetra Tech, Inc.
 Mr. Glenn Young, Fugro West, Inc.
 Mr. Mark Stelljes, SLR International Corp.

JRH:MAA:tem

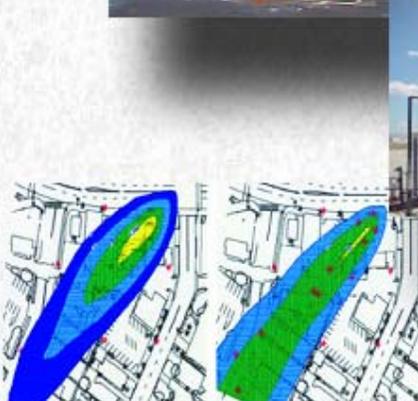
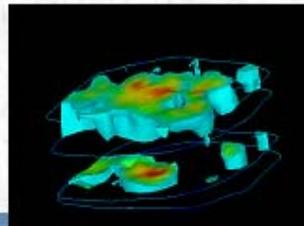
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Dioxin Sampling and Analysis Report

Georgia-Pacific Corporation California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California



Prepared For

Georgia-Pacific Corporation

Prepared By

ACTON • MICKELSON • ENVIRONMENTAL, INC.

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JULY 14, 2006

DIOXIN SAMPLING AND ANALYSIS REPORT

PREPARED FOR

Georgia-Pacific Corporation
California Wood Products Manufacturing Facility
90 West Redwood Avenue
Fort Bragg, California

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1. INTRODUCTION

In response to the order issued by the California Regional Water Quality Control Board, North Coast Region (North Coast Water Board) on June 13, 2006 (Appendix A), this *Dioxin Sampling and Analysis Report* (report) contains preliminary results for sampling and analysis for chlorinated dioxins and dibenzofurans at the former Georgia-Pacific (G-P) California Wood Products Manufacturing Facility located at 90 West Redwood Avenue in Fort Bragg, California (site; **Figures 1** and **2**). A summary of fly ash handling and disposal based on a review of currently available documents, the soil and ground water sampling technical approach, and soil boring logs and analytical results through May 2006 are presented in this report. Analysis of the subject data, results of a review of additional fly ash handling documentation, proposals for additional remedial investigation where appropriate, and other recommendations are pending and will be provided in future submittals; thus, the results presented herein should be considered preliminary.

2. BACKGROUND

2.1 Site Description

The site is located along the Pacific Ocean coastline in the City of Fort Bragg, Mendocino County, California. Located on approximately 445 acres west of Highway One, the site is bounded to the south by Noyo Bay, to the west and northwest by open coastline, and to the northeast and east by the City of Fort Bragg. The site was divided into ten parcels during previous investigations based on historical operations and land use. **Figure 2** is a site map showing the locations of parcels, major buildings, ponds, and other features.

2.2 Fly Ash Handling and Disposal

Information sources for this section include:

- G-P file
- Paul E. Johnson, G-P
- Douglas A. Heitmeyer, Environmental Coordinator, G-P
- North Coast Water Board (review of a portion of the file originally made available to G-P; review of the remainder of the file will be documented in a future submittal)

A list of references is presented in Section 6.

2.2.1 Source of Fly Ash

Steam used to power sawmill operations was generated from three boilers in the Powerhouse fired by hog fuel comprised of chipped/ground-up green sawdust and bark (**Figure 2**). When necessary, oil was used to fire the boilers. Fly ash was generated at the site by burning the hog fuel in boilers at the Powerhouse.

2.2.2 Powerhouse Operations - Mid 1970s to 1996

From the approximate mid-1970s to 1996, fly ash emissions from the boilers were controlled by multi-cyclone collectors, followed by wet scrubbers. Accumulated fly ash in the multi-cyclone collectors was placed in a dump hopper for removal and placement at an offsite location.

Scrubber water from the boilers contained fly ash and was piped to two dewatering slabs, where after drying the residual fly ash was also placed in a dump hopper for removal and placement at an offsite location (**Figure 2**). The terminus of the pipe conveying scrubber water used a nozzle situated between the two dewatering slabs to direct flow. Water on the dewatering slabs that did not evaporate was conveyed to Pond 7 (Blow-Down Pond). Pond 7 also received wash water from the Powerhouse by way of a sump pump and covered concrete trench as well as ground water and surface runoff from the Powerhouse area (Heitmeyer and Johnson 2006).

Two pumps located immediately west of Pond 7 conveyed water in the same pipeline from Pond 7 to Pond 1. Water was conveyed by gravity in a pipe from Pond 1 to Pond 3 and then to Pond 8. Pond 1 could discharge through a culvert into Pond 2 during a high-water emergency. Pond 2 was comprised of Pudding Creek water and storm water runoff except when a high-water emergency necessitated transfer of Pond 1 water to Pond 2. Under high-water conditions, water could flow by pipe from Pond 2 to Pond 3. Water from Pond 8 is discharged to the Pacific Ocean (Heitmeyer and Johnson 2006).

2.2.3 Powerhouse Operations -1996 to 2002 (Termination of Mill Operations)

In 1996, two changes were incorporated into the system described above. First, an ash re-injection system was installed, which eliminated use of the dewatering slabs. Process water from the boilers was conveyed directly to Pond 7. Second, Pond 4 was excavated to receive water conveyed by pipe from Pond 7. Overflow from Pond 4 was conveyed by gravity pipe to Pond 1. From Pond 1, water followed a course similar to that described in Section 2.2.2 above.

2.2.4 Solid Fly Ash

From approximately 1985 through 2002, solid fly ash from the multi-cyclone collectors, the dewatering slabs, or from dredging of Ponds 1, 4, and 7 was placed in dump hoppers for transport to offsite locations for use as a soil amendment (Heitmeyer and Johnson 2006).

Pond 1 was dredged once in 1996 when Pond 4 was excavated. The volume of material removed during the event is unknown. Pond 4 was dredged approximately once or twice annually from 1996 to 2002, with roughly 70 cubic yards of material removed during each event. Pond 7 was dredged approximately twice, with approximately 90 cubic yards of material removed during each event.

Around October 1983, fly ash was transported to Redwood School in Fort Bragg for use as a soil amendment on athletic fields comprising approximately 3 acres. The volume of fly ash used is not known. The City of Fort Bragg Fire Department applied water to the area of amendment for dust suppression purposes (Heitmeyer and Johnson 2006).

From February 1986 until October 1991, fly ash was transported to G-P property in Little Valley for use as a soil amendment initially under Order No. 86-3 Waste Discharge Requirements issued January 30, 1986 by the North Coast Water Board. Cleanup and Abatement Order No. 86-43 was issued on February 13, 1986 because of ash discharge to area surface streams. Cleanup and Abatement Order No. 86-43 was rescinded by Order No. 87-80 issued on June 1, 1987 after appropriate corrective actions had been implemented by G-P. Order No. 90-32 Waste Discharge Requirements was issued in 1990 to allow for interim ash stockpiling so that the bioaccumulation and hazard potential of the fly ash could be assessed. Order No. 90-154 Waste Discharge Requirements was issued August 16, 1990 to allow resumption of soil amendment activities. Order No. 91-93 Waste Discharge Requirements was issued on June 27, 1991 as an interim permit to allow for continued stockpiling and amending until a review of all sampling data was completed. Order No. 91-121 Waste Discharge Requirements was issued on August 22, 1991, rescinded Order No. 91-93 Waste Discharge Requirements, and allowed for continued soil amendment at Little Valley.

The use of fly ash as a soil amendment in Little Valley and subsequent soil sampling and analysis is documented in *TCDF Study on Fly Ash Amended Soil and Related Environmental Vectors* submitted to the North Coast Water Board on December 21, 1989. The volume of fly ash transported from the site to Little Valley is currently unknown but will be reported in future documentation to the North Coast Water Board if ascertained from further review of the record.

From approximately 1992 through 2002, fly ash was transported to McGuire Ranch for use as a soil amendment under Order No. 92-26 Waste Discharge Requirements issued on February 26, 1992 and Order 96-96 Waste Discharge Requirements issued on December 5, 1996, which allowed for biosolids from the Mendocino City Community Services District to be incorporated into the soil amendment. Approximately 180 acres of McGuire Ranch land were amended with fly ash. The use of fly ash at McGuire Ranch will be documented in a report to be submitted to the North Coast Water Board following further review of the record and completion of an investigation to evaluate potential impacts of dioxin and other constituents of potential concern. A work plan outlining this investigation will be submitted by August 14, 2006 to the North Coast Water Board for approval prior to initiation of activities.

Offsite disposal of fly ash ended when mill operations were terminated in 2002. The fly ash stockpile currently located onsite is the result of 2002 Pond 4 dredging.

Currently available documentation indicates that fly ash may have been received or used as a soil amendment at the following locations:

- Bald Hill and Canyon Road (no number address), Fort Bragg, California (correspondence dated August 30, 1985)
- Mendocino High School (correspondence dated February 26, 1986)
- Michael Cleary, P.O. Box 14, Fort Bragg, California 95437 (correspondence dated April 14 and 23 and May 28, 1986)
- Kristy Sarconi, P.O. Box 284, Comptche, California 95427 (correspondence dated May 29, 1986)
- Spring Ranch, Highway 1 Little Valley area (correspondence dated June 10, 1986)
- Green Valley Nursery, Parcels 019/570/04 and 017/262/220 Fort Bragg (correspondence dated June 17, 1986)
- Tom Estes, 22560 Highway 1, Fort Bragg, California, 95437 (correspondence dated December 8 and 31, 1986)
- L.M. Remstedt, 44200 Johnson Peak Road, East Caspar, California (correspondence dated May 8, 1987)
- Thor Coblenz, P.O. Box 1378, Mendocino, California 95460 (correspondence dated May 29, 1987)

- Dan Murray, 31550 Little Valley Road, Fort Bragg, California 95437 (correspondence dated May 29, 1987)
- Linora Salpen, 33550 Gibney Lane, Fort Bragg, California 95437 (correspondence dated June 25, 1987)
- Additional storage area south of Ross Ranch (document dated February 3, 1992)

3. TECHNICAL APPROACH

3.1 Field Sampling Procedures

Soil borings and sampling were performed under the direction of an appropriately registered Acton • Mickelson • Environmental, Inc. professional. Soil borings were advanced using:

- Hand sampling
- Hand auger and hand-held drive sampler
- Truck-mounted or barge-mounted direct push rig
- Truck-mounted, hollow-stem auger drill rig

Soil boring permits are in Appendix B.

3.1.1 Hand Sampling

Surface samples were collected by advancing a 2- by 6-inch stainless steel sampling tube into underlying material by either manually pushing or tapping with a hammer.

3.1.2 Hand Auger, Hand-Held Drive Sampler

Samples deeper than 6 inches were collected at each location in the ash stockpile by advancing a hand auger to the desired depth and driving a 2- by 6-inch stainless steel sampling tube into underlying material using a slide hammer. Upon recovery of the sampler, the stainless-steel tubes containing the soil were removed and the ends sealed with Teflon[®] tape and plastic end caps.

Upon retrieval of the sampling tube, all sampling tools were decontaminated in accordance with standard procedures described in Appendix C.

3.1.3 Truck-Mounted or Barge-Mounted Direct Push Rig

A truck-mounted direct push rig was used for collecting samples at soil borings in Parcels 3, 8, and 10, and deeper samples at the ash stockpile. A barge-mounted direct push rig was used for all pond drilling operations.

A continuous core was collected by pushing a sampler containing a 4-foot-long acrylic or polyvinyl chloride (PVC) tube. Soil samples selected for laboratory analysis were obtained by saw cutting a 6-inch length from the soil-filled tube and sealing the ends of the removed segment with Teflon[®] tape and plastic end caps.

3.1.4 Truck-Mounted Hollow-Stem Auger Drill Rig

A truck-mounted hollow-stem auger drill rig was used to obtain samples from the Former South Pond site. Soil samples were collected at 5-foot vertical intervals in general accordance with ASTM D1586-84 (re-approved 1992) modified to allow the use of a 2-inch-diameter, split-barrel sampler. Using this procedure, three 2-inch-diameter, 6-inch-long stainless-steel tubes were placed in a California-type split-barrel sampler, which was driven 18 inches into underlying material by a

140-pound hammer falling 30 inches. Upon recovery of the split-barrel sampler, the stainless-steel tubes containing the soil were removed. The lowermost tube was then sealed at the ends with Teflon[®] tape and plastic end caps.

The split-barrel sampler was cleaned to prevent cross-contamination for each sampling interval. After drilling, borings were backfilled with neat cement.

3.1.5 Grass Sampling

Low-lying green grass was sampled around previous soil sample locations at the ash stockpile. A handful of grass was trimmed with shears above ground level. Grass was not pulled out or roots collected, and soil and ash were avoided. Approximately 1 quart of grass was collected at each location. The grass was rinsed in the field with distilled water to remove soil, dust, or dry deposition. Excess moisture was removed by washing and drying. Samples were placed in clean, dry, and clear glass jars for transport to the laboratory for analysis.

3.1.6 Soil Boring Logging and Sample Handling

Soil was examined for composition, color, moisture content, relative density, grain size and shape, and other identifiers that would define soil types. A complete log of soil conditions was recorded on a soil boring log (Appendix D) using the Unified Soil Classification System.

Sample tubes were taken on a clean, dry surface (on a plastic-covered surface if necessary) to avoid contact with contaminated surfaces or water during both hand sampling and drilling operations. Sample tubes were labeled with an identification number, time, and date, then placed in a plastic bag and stored at approximately 4 degrees Celsius in an ice chest for transport to the laboratory (Appendix C).

3.1.7 Grab Ground Water and Surface Water Sampling

Grab ground water samples were obtained using exposed-screen PVC pipe and a peristaltic pump in general accordance with ASTM D6001 (re-approved 2002). At the target interval at the boring location, a PVC pipe was lowered to the formation from which a grab ground water sample was collected with a peristaltic pump and polyethylene tubing. The sample was then transferred to the laboratory-supplied containers for analysis. For sampling at the Pond 8 outfall, polyethylene tubing was lowered 12 inches from the bottom of the outfall from which a grab water sample was collected using a peristaltic pump and polyethylene tubing.

3.1.8 Chain-of-Custody

Chain-of-custody records were completed and accompanied every sample and sample shipment to the analytical laboratory in order to establish necessary documentation to trace sample possession from the time of collection (Appendix C). The laboratory portion of the form was completed by laboratory personnel.

3.2 Quality Assurance/Quality Control

Laboratory data were validated based on data quality objectives and parameters presented in the Quality Assurance Plan (QAP). Included in this validation process was evaluation of the following criteria:

- Sample condition upon laboratory receipt
- Holding times
- Laboratory method blanks
- Ongoing precision and recovery sample results
- Internal standard recoveries
- Cleanup standard recoveries
- Identification and quantitation of target compounds
- Verification of electronic deliverables

3.3 Investigation-Derived Waste

All waste soil produced from hollow stem auger and direct push drilling operations was collected at each boring location and transported via 5-gallon buckets or Bobcat front-end loader to onsite soil storage bins. The bins were lined with visqueen and sealed to inhibit rainwater entry. Fluids resulting from grab ground water sampling were containerized in 5-gallon buckets and stored in onsite poly tanks until disposed of in accordance with jurisdictional requirements. Hand-sampled ash stockpile locations produced no waste for containerization due to the sampling methods used.

4. RESULTS

4.1 Stratigraphy

Please see the boring logs presented in Appendix D.

4.2 Analytical Results

Reported concentrations of dioxins and furans are listed in **Tables 1** and **2** and shown on **Figure 3**. Laboratory analytical reports are in Appendix E.

4.2.1 Fly Ash

Within the fly ash stockpile, dioxin Toxicity Equivalency Quotient (TEQ) values ranged from 767 picograms per gram (pg/g) (AS-7.2) to 991 pg/g (AS-7.1).

4.2.2 Soil

Within the soil sampling areas in Parcels 3, 8, and 10, dioxin TEQ values ranged from 0.00013 pg/g (DP-10.9-95) to 2.17 pg/g (DP-8.9-2.5).

4.2.3 Sediment

Within pond sediments, dioxin TEQ values ranged from 0.00 pg/g (DP-7.16-10 [Pond 3]) to 1,730 pg/g (DP-4.12-13 [Pond 7]).

4.2.4 Grass

In grass samples taken from on top of the fly ash stockpile, dioxin TEQ values ranged from 0.0635 pg/g (AS-7.1-GRASS) to 0.646 pg/g (AS-7.2-GRASS).

4.2.5 Ground Water

Grab ground water samples were collected from two direct push borings located northwest of Dry Shed 4. In those ground water samples, reported dioxin TEQ values ranged from 5.2 picograms per liter (pg/L) at DP-3.59 to 14.02 pg/L at DP-3.60, northwest of Dry Shed 4. These samples were unfiltered. The presence of turbidity may result in reported concentrations that are greater than actual dissolved phase concentrations.

4.2.6 Surface Water

A surface water sample was collected from the south outfall of Pond 8. (The north outfall is dry except during high flows.) This sample was filtered in the field. The reported dioxin TEQ value was 0 pg/L.

4.3 Data Validation Results

Data validation was performed using procedures outlined in the QAP. Data qualifiers appended to the laboratory results have been added to the tables summarizing the sample analytical data. Data validation summary reports are in Appendix F

Results of the data validation process indicate that most quality control criteria, including holding times, method blanks, and internal standards, were met by the laboratory.

Overall assessment of analytical results indicates data are acceptable and usable, although occasional deviations from control limits required that some reported values be qualified. Most of these control limit deviations are the result of method blank holding times.

In general, validation of the laboratory reports indicated that the majority of laboratory data meet the QAP-specified criteria for precision, accuracy, representativeness, comparability, and completeness. No systemic laboratory quality control issues were identified, and no corrective actions were required.

5. REMARKS

This report represents our professional opinions, which are based in part on client-supplied and currently available information and are arrived at in accordance with accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended. This report was prepared solely for the use of our client. Any reliance on the information contained in the ground water monitoring report by third parties shall be at such parties' sole risk.

6. REFERENCES

- Annual Report – Georgia-Pacific Soil Amending Project.* n.d.
- Giovannoni, Ellie. 1986. Letter to Regional Water Quality Control Board. Undated.
- G-P. 1989. Completed Application for Facility Permit/Waste Discharge. September 27.
- _____. 1991a. Completed Application for Facility Permit/Waste Discharge. February 26.
- _____. 1991b. Intracompany Memo re: Permit Application. July 17.
- _____. 1991c. Letter from Steven Petrin, Senior Environmental Planner for Western Area Building Products, to Mark Neely, Associate Engineering Geologist, North Coast Water Board, re: Georgia-Pacific Corporation Boiler Ash Soil Amendment Project Amendment to Report of Waste Discharge. October 28.
- Heitmeyer, Douglas A and Johnson, Paul E. 2006. Teleconference. July 5.
- Little Valley Summary Report 1988-1991, Introduction. 1988-1991.
- North Coast Water Board. 1986. *Order No. 86-3, ID No. 1B85030RMEN, Waste Discharge Requirements for Georgia-Pacific Corporation Fort Bragg Soil Amendment.* January 30.
- _____. 1986. *Cleanup and Abatement Order No. 86-43 for Georgia-Pacific Corporation Fort Bragg Ash Soil Amendment.* February 13.
- _____. 1987. *Recision of Cleanup and Abatement Order No. 87-80 for Georgia-Pacific Corporation Fort Bragg Ash Soil Amendment.* June 1.
- _____. 1988. *Revised Monitoring and Reporting Program No. 86-3 for Georgia-Pacific Corporation Fort Bragg Soil Amendment.* May 23.
- _____. Undated. *Order No. 90-32, ID No. 1B85030RMEN, Waste Discharge Requirement for Georgia-Pacific Corporation Fort Bragg Soil Amendment.*
- _____. 1990. *Proposed Waste Discharge Requirements for Georgia-Pacific Corporation Fort Bragg Soil Amendment.* July 31.
- _____. 1991. *Order No. 91-93 for Georgia-Pacific Corporation Fort Bragg Soil Amendment.* June 27.
- _____. 1991. *Preliminary Order No. 91-121, ID No. 1B85030RMEN, Waste Discharge Requirements for Georgia-Pacific Corporation Fort Bragg Soil Amendment.* July 23.
- _____. 1992. *Notice of Adoption of Waste Discharge Requirements for Georgia-Pacific Corporation and James I. and Barbara McGuire Soil Amendment.* March 4.

Warner, Susan. 1986. Letter to Donald Kilpatrick, Mendocino Unified School District.
February 26.

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-1.5	5	Soil	4/27/2006	DP-1.5-5	2,3,7,8-TCDD	ND	0.0227	
					1,2,3,7,8-PeCDD	ND	0.0369	
					1,2,3,4,7,8-HxCDD	ND	0.0373	
					1,2,3,6,7,8-HxCDD	ND	0.0378	
					1,2,3,7,8,9-HxCDD	ND	0.0379	
					1,2,3,4,6,7,8-HpCDD	0.222 J		
					1,2,3,4,6,7,8,9-OCDD	1.58 J		
					2,3,7,8-TCDF	ND	0.0308	
					1,2,3,7,8-PeCDF	ND	0.0318	
					2,3,4,7,8-PeCDF	ND	0.032	
					1,2,3,4,7,8-HxCDF	ND	0.0269	
					1,2,3,6,7,8-HxCDF	ND	0.0279	
					2,3,4,6,7,8-HxCDF	ND	0.0305	
					1,2,3,7,8,9-HxCDF	0.148 J		
					1,2,3,4,6,7,8-HpCDF	0.144 J,Bu		
					1,2,3,4,7,8,9-HpCDF	ND	0.0797	
					1,2,3,4,6,7,8,9-OCDF	0.446 J,Bu		
					Total TCDD	ND	0.0227	
					Total PeCDD	ND	0.0369	
					Total HxCDD	ND	0.0377	
					Total HpCDD	0.43		
					Total TCDF	ND	0.0308	
					Total PeCDF	ND	0.0319	
					Total HxCDF	0.148 B		
					Total HpCDF	0.144 Bu		
					2,3,7,8-TCDD TEQ (ITEF)	0.0187		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-3.59	1	Soil	10/10/2005	DP-3.59-1	2,3,7,8-TCDD	ND	0.178	
					1,2,3,7,8-PeCDD	0.737 J		
					1,2,3,4,7,8-HxCDD	3.07		
					1,2,3,6,7,8-HxCDD	22.8		
					1,2,3,7,8,9-HxCDD	9.19		
					1,2,3,4,6,7,8-HpCDD	559		
					1,2,3,4,6,7,8,9-OCDD	3560		
					2,3,7,8-TCDF	0.653		
					1,2,3,7,8-PeCDF	1.55 J		
					2,3,4,7,8-PeCDF	2.35 J		
					1,2,3,4,7,8-HxCDF	8.06		
					1,2,3,6,7,8-HxCDF	10.2		
					2,3,4,6,7,8-HxCDF	9.11		
					1,2,3,7,8,9-HxCDF	1.46 J		
					1,2,3,4,6,7,8-HpCDF	208		
					1,2,3,4,7,8,9-HpCDF	10		
					1,2,3,4,6,7,8,9-OCDF	336		
					Total TCDD	ND	0.178	
					Total PeCDD	4.29		
					Total HxCDD	109		
					Total HpCDD	879		
					Total TCDF	8.14		
					Total PeCDF	40.9		
					Total HxCDF	213		
					Total HpCDF	506		
2,3,7,8-TCDD TEQ (ITEF)	16.6							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.7	1	Soil	4/17/2006	DP-4.7-1b	2,3,7,8-TCDD	1.62 Jj		
					1,2,3,7,8-PeCDD	1.27 Jj		
					1,2,3,4,7,8-HxCDD	ND uj	0.792	
					1,2,3,6,7,8-HxCDD	1.2 Jj		
					1,2,3,7,8,9-HxCDD	1.17 Jj		
					1,2,3,4,6,7,8-HpCDD	21.1 j		
					1,2,3,4,6,7,8,9-OCDD	325 j		
					2,3,7,8-TCDF	11 j		
					1,2,3,7,8-PeCDF	ND uj		3.38
					2,3,4,7,8-PeCDF	4.72 Jj		
					1,2,3,4,7,8-HxCDF	ND uj		1.43
					1,2,3,6,7,8-HxCDF	1.38 Jj		
					2,3,4,6,7,8-HxCDF	1.35 Jj		
					1,2,3,7,8,9-HxCDF	ND uj	0.596	
					1,2,3,4,6,7,8-HpCDF	4.46 J,Bj		
					1,2,3,4,7,8,9-HpCDF	ND uj	0.446	
					1,2,3,4,6,7,8,9-OCDF	28.2 j		
					Total TCDD	15.3 j		19.7
					Total PeCDD	11.5 j		13.4
					Total HxCDD	11.6 j		
					Total HpCDD	39.7 j		
					Total TCDF	184 j		187
					Total PeCDF	47 j		51
					Total HxCDF	13.9 j		15.3
					Total HpCDF	17 Bj		
2,3,7,8-TCDD TEQ (ITEF)	7.15							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.7	15	Soil	4/17/2006	DP-4.7-15	2,3,7,8-TCDD	ND	0.0235	
					1,2,3,7,8-PeCDD	ND	0.0373	
					1,2,3,4,7,8-HxCDD	ND	0.0417	
					1,2,3,6,7,8-HxCDD	ND	0.0431	
					1,2,3,7,8,9-HxCDD	ND	0.0428	
					1,2,3,4,6,7,8-HpCDD	1.46 J		
					1,2,3,4,6,7,8,9-OCDD	11.2 Bu		
					2,3,7,8-TCDF	ND	0.0255	
					1,2,3,7,8-PeCDF	ND	0.029	
					2,3,4,7,8-PeCDF	ND	0.0277	
					1,2,3,4,7,8-HxCDF	0.125 J		
					1,2,3,6,7,8-HxCDF	0.0862 J		
					2,3,4,6,7,8-HxCDF	ND	0.0312	
					1,2,3,7,8,9-HxCDF	ND	0.0491	
					1,2,3,4,6,7,8-HpCDF	0.57 J		
					1,2,3,4,7,8,9-HpCDF	ND	0.069	
					1,2,3,4,6,7,8,9-OCDF	1.25 J		
					Total TCDD	0.177		
					Total PeCDD	0.122		
					Total HxCDD	1		
					Total HpCDD	2.86		
					Total TCDF	0.147		
					Total PeCDF	0.37		
					Total HxCDF	0.911		
					Total HpCDF	1.47		
					2,3,7,8-TCDD TEQ (ITEF)	0.0427		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.7	20	Soil	4/17/2006	DP-4.7-20b	2,3,7,8-TCDD	18.5 j		
					1,2,3,7,8-PeCDD	17.9 j		
					1,2,3,4,7,8-HxCDD	7.72 j		
					1,2,3,6,7,8-HxCDD	9.99 j		
					1,2,3,7,8,9-HxCDD	7.92 j		
					1,2,3,4,6,7,8-HpCDD	30.9 j		
					1,2,3,4,6,7,8,9-OCDD	48.7 j		
					2,3,7,8-TCDF	178 j		
					1,2,3,7,8-PeCDF	57.2 j		
					2,3,4,7,8-PeCDF	78.9 j		
					1,2,3,4,7,8-HxCDF	16.7 j		
					1,2,3,6,7,8-HxCDF	20.6 j		
					2,3,4,6,7,8-HxCDF	23.6 j		
					1,2,3,7,8,9-HxCDF	7.82 j		
					1,2,3,4,6,7,8-HpCDF	12.8 Bj		
					1,2,3,4,7,8,9-HpCDF	4.06 j		
					1,2,3,4,6,7,8,9-OCDF	4.65 Jj		
					Total TCDD	326 j		
					Total PeCDD	199 j		
					Total HxCDD	117 j		
					Total HpCDD	54.4 j		
					Total TCDF	2820 j		
					Total PeCDF	842 Dj		
Total HxCDF	209 j							
Total HpCDF	31 Bj							
2,3,7,8-TCDD TEQ (ITEF)	106							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.9	4.5	Soil	4/25/2006	DP-4.9-4.5	2,3,7,8-TCDD	0.253 J		
					1,2,3,7,8-PeCDD	0.421 J		
					1,2,3,4,7,8-HxCDD	0.325 J		
					1,2,3,6,7,8-HxCDD	2.41 J		
					1,2,3,7,8,9-HxCDD	1.01 J		
					1,2,3,4,6,7,8-HpCDD	29.9		
					1,2,3,4,6,7,8,9-OCDD	215 B		
					2,3,7,8-TCDF	0.996		
					1,2,3,7,8-PeCDF	0.406 J		
					2,3,4,7,8-PeCDF	1.21 J		
					1,2,3,4,7,8-HxCDF	0.451 J		
					1,2,3,6,7,8-HxCDF	0.515 J		
					2,3,4,6,7,8-HxCDF	0.704 J		
					1,2,3,7,8,9-HxCDF	0.161 J		
					1,2,3,4,6,7,8-HpCDF	6.53		
					1,2,3,4,7,8,9-HpCDF	0.383 J		
					1,2,3,4,6,7,8,9-OCDF	18.5		
					Total TCDD	3.77		
					Total PeCDD	4.33		
					Total HxCDD	21		
					Total HpCDD	59.3		
					Total TCDF	18.1 D		
					Total PeCDF	14.8 D		
					Total HxCDF	13.3		
					Total HpCDF	18.5		
					2,3,7,8-TCDD TEQ (ITEF)	2.35		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.9	10	Soil	4/25/2006	DP-4.9-10	2,3,7,8-TCDD	ND		0.151
					1,2,3,7,8-PeCDD	ND		0.109
					1,2,3,4,7,8-HxCDD	ND	0.0417	
					1,2,3,6,7,8-HxCDD	0.168 J		
					1,2,3,7,8,9-HxCDD	0.119 J		
					1,2,3,4,6,7,8-HpCDD	1.25 J		
					1,2,3,4,6,7,8,9-OCDD	6.79 Bu		
					2,3,7,8-TCDF	0.928		
					1,2,3,7,8-PeCDF	0.227 J		
					2,3,4,7,8-PeCDF	0.352 J		
					1,2,3,4,7,8-HxCDF	0.0841 J		
					1,2,3,6,7,8-HxCDF	0.0728 J		
					2,3,4,6,7,8-HxCDF	0.0826 J		
					1,2,3,7,8,9-HxCDF	ND	0.0231	
					1,2,3,4,6,7,8-HpCDF	0.288 J		
					1,2,3,4,7,8,9-HpCDF	ND	0.0255	
					1,2,3,4,6,7,8,9-OCDF	0.603 J		
					Total TCDD	1.6		
					Total PeCDD	0.935		
					Total HxCDD	1.54		
					Total HpCDD	2.32		
					Total TCDF	14.1		
					Total PeCDF	2.69		
					Total HxCDF	0.739		
					Total HpCDF	0.565		
					2,3,7,8-TCDD TEQ (ITEF)	0.349		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.10	11	Soil	4/18/2006	DP-4.10-11	2,3,7,8-TCDD	43.4		
					1,2,3,7,8-PeCDD	34		
					1,2,3,4,7,8-HxCDD	10.9		
					1,2,3,6,7,8-HxCDD	14.7		
					1,2,3,7,8,9-HxCDD	12.8		
					1,2,3,4,6,7,8-HpCDD	56.8		
					1,2,3,4,6,7,8,9-OCDD	167 B		
					2,3,7,8-TCDF	398		
					1,2,3,7,8-PeCDF	110		
					2,3,4,7,8-PeCDF	136		
					1,2,3,4,7,8-HxCDF	24.7		
					1,2,3,6,7,8-HxCDF	29.6 D		
					2,3,4,6,7,8-HxCDF	28.3 D		
					1,2,3,7,8,9-HxCDF	10.1		
					1,2,3,4,6,7,8-HpCDF	18.5		
					1,2,3,4,7,8,9-HpCDF	4.71		
					1,2,3,4,6,7,8,9-OCDF	11.8		
					Total TCDD	572		
					Total PeCDD	333		
					Total HxCDD	196		
					Total HpCDD	102		
					Total TCDF	5820		
					Total PeCDF	1400 D		
Total HxCDF	266 D							
Total HpCDF	41.5							
2,3,7,8-TCDD TEQ (ITEF)	205							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.10	16	Soil	4/18/2006	DP-4.10-16b	2,3,7,8-TCDD	ND uj	0.197	
					1,2,3,7,8-PeCDD	ND uj	0.142	
					1,2,3,4,7,8-HxCDD	ND uj	0.119	
					1,2,3,6,7,8-HxCDD	ND uj	0.118	
					1,2,3,7,8,9-HxCDD	ND uj	0.115	
					1,2,3,4,6,7,8-HpCDD	ND uj	0.347	
					1,2,3,4,6,7,8,9-OCDD	0.857 Jj		
					2,3,7,8-TCDF	0.224 Jj		
					1,2,3,7,8-PeCDF	ND uj	0.248	
					2,3,4,7,8-PeCDF	ND uj	0.232	
					1,2,3,4,7,8-HxCDF	ND uj	0.0972	
					1,2,3,6,7,8-HxCDF	ND uj	0.0867	
					2,3,4,6,7,8-HxCDF	ND uj	0.097	
					1,2,3,7,8,9-HxCDF	ND uj	0.134	
					1,2,3,4,6,7,8-HpCDF	ND uj	0.0897	
					1,2,3,4,7,8,9-HpCDF	ND uj	0.106	
					1,2,3,4,6,7,8,9-OCDF	ND uj	0.258	
					Total TCDD	ND uj	0.197	
					Total PeCDD	ND uj		0.249
					Total HxCDD	ND uj	0.291	
					Total HpCDD	ND uj	0.347	
					Total TCDF	1.82 j		
					Total PeCDF	ND uj	0.24	
					Total HxCDF	ND uj	0.102	
					Total HpCDF	ND uj	0.097	
2,3,7,8-TCDD TEQ (ITEF)	0.0225							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.11	13	Soil	4/17/2006	DP-4.11-13	2,3,7,8-TCDD	198		
					1,2,3,7,8-PeCDD	466		
					1,2,3,4,7,8-HxCDD	313		
					1,2,3,6,7,8-HxCDD	465		
					1,2,3,7,8,9-HxCDD	400		
					1,2,3,4,6,7,8-HpCDD	1960		
					1,2,3,4,6,7,8,9-OCDD	3260 B		
					2,3,7,8-TCDF	1190		
					1,2,3,7,8-PeCDF	623		
					2,3,4,7,8-PeCDF	1090		
					1,2,3,4,7,8-HxCDF	381		
					1,2,3,6,7,8-HxCDF	419 D		
					2,3,4,6,7,8-HxCDF	494 D		
					1,2,3,7,8,9-HxCDF	150 D		
					1,2,3,4,6,7,8-HpCDF	528 D		
					1,2,3,4,7,8,9-HpCDF	126		
					1,2,3,4,6,7,8,9-OCDF	213		
					Total TCDD	5570		
					Total PeCDD	6270		
					Total HxCDD	6360		
					Total HpCDD	3420		
					Total TCDF	22900 D		
					Total PeCDF	10300 D		
Total HxCDF	3890 D							
Total HpCDF	1050 D							
2,3,7,8-TCDD TEQ (ITEF)	1650							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.12	13	Soil	4/18/2006	DP-4.12-13	2,3,7,8-TCDD	192		
					1,2,3,7,8-PeCDD	476		
					1,2,3,4,7,8-HxCDD	342		
					1,2,3,6,7,8-HxCDD	495		
					1,2,3,7,8,9-HxCDD	430		
					1,2,3,4,6,7,8-HpCDD	2000		
					1,2,3,4,6,7,8,9-OCDD	2940 B		
					2,3,7,8-TCDF	1250		
					1,2,3,7,8-PeCDF	676		
					2,3,4,7,8-PeCDF	1190		
					1,2,3,4,7,8-HxCDF	402		
					1,2,3,6,7,8-HxCDF	459 D		
					2,3,4,6,7,8-HxCDF	549 D		
					1,2,3,7,8,9-HxCDF	173 D		
					1,2,3,4,6,7,8-HpCDF	579 D		
					1,2,3,4,7,8,9-HpCDF	143		
					1,2,3,4,6,7,8,9-OCDF	227		
					Total TCDD	6270		
					Total PeCDD	6920		
					Total HxCDD	7300		
					Total HpCDD	3450		
					Total TCDF	25600 D		
					Total PeCDF	11400 D		
Total HxCDF	4310 D							
Total HpCDF	1200 D							
2,3,7,8-TCDD TEQ (ITEF)	1730							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.12	18	Soil	4/18/2006	DP-4.12-18b	2,3,7,8-TCDD	ND uj	0.175	
					1,2,3,7,8-PeCDD	ND uj	0.245	
					1,2,3,4,7,8-HxCDD	ND uj	0.184	
					1,2,3,6,7,8-HxCDD	ND uj	0.177	
					1,2,3,7,8,9-HxCDD	ND uj	0.372	
					1,2,3,4,6,7,8-HpCDD	0.294 Jj		
					1,2,3,4,6,7,8,9-OCDD	0.722 Jj		
					2,3,7,8-TCDF	0.24 Jj		
					1,2,3,7,8-PeCDF	ND uj	0.349	
					2,3,4,7,8-PeCDF	ND uj	0.341	
					1,2,3,4,7,8-HxCDF	ND uj	0.0842	
					1,2,3,6,7,8-HxCDF	ND uj	0.078	
					2,3,4,6,7,8-HxCDF	ND uj	0.0826	
					1,2,3,7,8,9-HxCDF	ND uj	0.105	
					1,2,3,4,6,7,8-HpCDF	ND uj	0.0652	
					1,2,3,4,7,8,9-HpCDF	ND uj	0.0813	
					1,2,3,4,6,7,8,9-OCDF	ND uj	0.267	
					Total TCDD	ND uj	0.175	
					Total PeCDD	ND uj	0.314	
					Total HxCDD	ND uj	0.381	
					Total HpCDD	0.5 j		
					Total TCDF	1.89 j		
					Total PeCDF	0.0906 j		
					Total HxCDF	0.0798 j		
					Total HpCDF	ND uj	0.0727	
2,3,7,8-TCDD TEQ (ITEF)	0.027							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.13	6	Soil	4/18/2006	DP-4.13-6	2,3,7,8-TCDD	95.4		
					1,2,3,7,8-PeCDD	235		
					1,2,3,4,7,8-HxCDD	171		
					1,2,3,6,7,8-HxCDD	266		
					1,2,3,7,8,9-HxCDD	235		
					1,2,3,4,6,7,8-HpCDD	1070		
					1,2,3,4,6,7,8,9-OCDD	1500 B		
					2,3,7,8-TCDF	631		
					1,2,3,7,8-PeCDF	362		
					2,3,4,7,8-PeCDF	615		
					1,2,3,4,7,8-HxCDF	209		
					1,2,3,6,7,8-HxCDF	232 D		
					2,3,4,6,7,8-HxCDF	289 D		
					1,2,3,7,8,9-HxCDF	88.4		
					1,2,3,4,6,7,8-HpCDF	295		
					1,2,3,4,7,8,9-HpCDF	71		
					1,2,3,4,6,7,8,9-OCDF	118		
					Total TCDD	3140		
					Total PeCDD	3590		
					Total HxCDD	3840		
					Total HpCDD	1840		
					Total TCDF	13000 D		
					Total PeCDF	5880 D		
Total HxCDF	2250 D							
Total HpCDF	592							
2,3,7,8-TCDD TEQ (ITEF)	883							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.14	6	Soil	4/24/2006	DP-4.14-6	2,3,7,8-TCDD	4.08		
					1,2,3,7,8-PeCDD	2.49 J		
					1,2,3,4,7,8-HxCDD	2.51 J		
					1,2,3,6,7,8-HxCDD	18		
					1,2,3,7,8,9-HxCDD	12.7		
					1,2,3,4,6,7,8-HpCDD	233		
					1,2,3,4,6,7,8,9-OCDD	618 B		
					2,3,7,8-TCDF	1.07		
					1,2,3,7,8-PeCDF	1.24 J		
					2,3,4,7,8-PeCDF	20		
					1,2,3,4,7,8-HxCDF	2.01 J		
					1,2,3,6,7,8-HxCDF	6.8 D		
					2,3,4,6,7,8-HxCDF	7.61		
					1,2,3,7,8,9-HxCDF	1.18 J		
					1,2,3,4,6,7,8-HpCDF	15.2		
					1,2,3,4,7,8,9-HpCDF	0.646 J		
					1,2,3,4,6,7,8,9-OCDF	8.3		
					Total TCDD	16.6		
					Total PeCDD	33.2		
					Total HxCDD	190		
					Total HpCDD	378		
					Total TCDF	110 D		
					Total PeCDF	237 D		
Total HxCDF	118 D							
Total HpCDF	31.7							
2,3,7,8-TCDD TEQ (ITEF)	24.4							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.15	5	Soil	4/20/2006	DP-4.15-5	2,3,7,8-TCDD	2.41		
					1,2,3,7,8-PeCDD	9.15		
					1,2,3,4,7,8-HxCDD	9.73		
					1,2,3,6,7,8-HxCDD	41.3		
					1,2,3,7,8,9-HxCDD	28.5		
					1,2,3,4,6,7,8-HpCDD	861		
					1,2,3,4,6,7,8,9-OCDD	4090 B		
					2,3,7,8-TCDF	3.78		
					1,2,3,7,8-PeCDF	3.38 J		
					2,3,4,7,8-PeCDF	7.81		
					1,2,3,4,7,8-HxCDF	4.01 J		
					1,2,3,6,7,8-HxCDF	12.2		
					2,3,4,6,7,8-HxCDF	6.92		
					1,2,3,7,8,9-HxCDF	1.94 J		
					1,2,3,4,6,7,8-HpCDF	83.5		
					1,2,3,4,7,8,9-HpCDF	6.14		
					1,2,3,4,6,7,8,9-OCDF	218		
					Total TCDD	18.6		
					Total PeCDD	45.2		
					Total HxCDD	353		
					Total HpCDD	1490		
					Total TCDF	81.1 D		
					Total PeCDF	116 D		
					Total HxCDF	146 D		
Total HpCDF	244							
2,3,7,8-TCDD TEQ (ITEF)	36.4							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-4.15	10	Soil	4/20/2006	DP-4.15-10b	2,3,7,8-TCDD	ND uj	0.0974	
					1,2,3,7,8-PeCDD	ND uj	0.132	
					1,2,3,4,7,8-HxCDD	ND uj	0.201	
					1,2,3,6,7,8-HxCDD	ND uj	0.2	
					1,2,3,7,8,9-HxCDD	ND uj	0.194	
					1,2,3,4,6,7,8-HpCDD	ND uj		0.265
					1,2,3,4,6,7,8,9-OCDD	0.95 Jj		
					2,3,7,8-TCDF	ND uj	0.0861	
					1,2,3,7,8-PeCDF	ND uj	0.104	
					2,3,4,7,8-PeCDF	ND uj	0.0976	
					1,2,3,4,7,8-HxCDF	ND uj	0.0563	
					1,2,3,6,7,8-HxCDF	ND uj	0.0514	
					2,3,4,6,7,8-HxCDF	ND uj	0.0527	
					1,2,3,7,8,9-HxCDF	ND uj	0.0809	
					1,2,3,4,6,7,8-HpCDF	ND uj	0.0818	
					1,2,3,4,7,8,9-HpCDF	ND uj	0.0975	
					1,2,3,4,6,7,8,9-OCDF	ND uj	0.444	
					Total TCDD	ND uj		0.115
					Total PeCDD	ND uj	0.207	
					Total HxCDD	ND uj	0.198	
					Total HpCDD	ND uj		0.265
					Total TCDF	ND uj	0.144	
					Total PeCDF	ND uj	0.179	
					Total HxCDF	ND uj	0.0592	
Total HpCDF	ND uj	0.089						
2,3,7,8-TCDD TEQ (ITEF)	0.000095							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
HSA-4.5	16	Soil	1/24/2006	HSA-4.5-16b	2,3,7,8-TCDD	ND	0.12	
					1,2,3,7,8-PeCDD	ND	0.143	
					1,2,3,4,7,8-HxCDD	ND	0.126	
					1,2,3,6,7,8-HxCDD	ND	0.133	
					1,2,3,7,8,9-HxCDD	ND	0.125	
					1,2,3,4,6,7,8-HpCDD	1.88 J		
					1,2,3,4,6,7,8,9-OCDD	13.2		
					2,3,7,8-TCDF	ND	0.106	
					1,2,3,7,8-PeCDF	ND	0.124	
					2,3,4,7,8-PeCDF	ND	0.109	
					1,2,3,4,7,8-HxCDF	ND	0.0292	
					1,2,3,6,7,8-HxCDF	ND	0.0278	
					2,3,4,6,7,8-HxCDF	ND	0.0311	
					1,2,3,7,8,9-HxCDF	ND	0.0482	
					1,2,3,4,6,7,8-HpCDF	ND		0.195
					1,2,3,4,7,8,9-HpCDF	ND	0.0502	
					1,2,3,4,6,7,8,9-OCDF	0.289 J		
					Total TCDD	ND	0.12	
					Total PeCDD	ND	0.143	
					Total HxCDD	0.2		
					Total HpCDD	3.33		
					Total TCDF	ND	0.106	
					Total PeCDF	ND	0.117	
					Total HxCDF	ND	0.0334	
					Total HpCDF	0.235		0.43
					2,3,7,8-TCDD TEQ (ITEF)	0.0201		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-5.60	8	Soil	4/20/2006	DP-5.60-8	2,3,7,8-TCDD	ND		0.145
					1,2,3,7,8-PeCDD	0.374 J		
					1,2,3,4,7,8-HxCDD	0.223 J		
					1,2,3,6,7,8-HxCDD	0.889 J		
					1,2,3,7,8,9-HxCDD	0.577 J		
					1,2,3,4,6,7,8-HpCDD	10.5		
					1,2,3,4,6,7,8,9-OCDD	49.3 B		
					2,3,7,8-TCDF	0.274 J		
					1,2,3,7,8-PeCDF	ND		0.122
					2,3,4,7,8-PeCDF	0.379 J		
					1,2,3,4,7,8-HxCDF	0.136 J		
					1,2,3,6,7,8-HxCDF	0.209 J		
					2,3,4,6,7,8-HxCDF	0.219 J		
					1,2,3,7,8,9-HxCDF	ND	0.0435	
					1,2,3,4,6,7,8-HpCDF	1.31 J		
					1,2,3,4,7,8,9-HpCDF	0.114 J		
					1,2,3,4,6,7,8,9-OCDF	3.06 J		
					Total TCDD	0.589		
					Total PeCDD	1.79		
					Total HxCDD	8.55		
					Total HpCDD	20.9		
					Total TCDF	4.68		
					Total PeCDF	4.49		
					Total HxCDF	3.93		
Total HpCDF	4.19							
2,3,7,8-TCDD TEQ (ITEF)	0.941							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-5.60	13	Soil	4/20/2006	DP-5.60-13	2,3,7,8-TCDD	ND	0.0302	
					1,2,3,7,8-PeCDD	0.276 J		
					1,2,3,4,7,8-HxCDD	0.191 J		
					1,2,3,6,7,8-HxCDD	0.739 J		
					1,2,3,7,8,9-HxCDD	0.627 J		
					1,2,3,4,6,7,8-HpCDD	9.31		
					1,2,3,4,6,7,8,9-OCDD	44.5 B		
					2,3,7,8-TCDF	0.192 J		
					1,2,3,7,8-PeCDF	0.103 J		
					2,3,4,7,8-PeCDF	0.252 J		
					1,2,3,4,7,8-HxCDF	ND		0.105
					1,2,3,6,7,8-HxCDF	0.134 J		
					2,3,4,6,7,8-HxCDF	ND		0.143
					1,2,3,7,8,9-HxCDF	ND	0.0522	
					1,2,3,4,6,7,8-HpCDF	1.04 J		
					1,2,3,4,7,8,9-HpCDF	0.136 J		
					1,2,3,4,6,7,8,9-OCDF	2.88 J		
					Total TCDD	ND	0.0302	
					Total PeCDD	0.913		
					Total HxCDD	7.09		
					Total HpCDD	17.5		
					Total TCDF	2.67		
					Total PeCDF	2.67		
					Total HxCDF	2.59		
Total HpCDF	3.17							
2,3,7,8-TCDD TEQ (ITEF)	0.705							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-5.61	10	Soil	4/19/2006	DP-5.61-10	2,3,7,8-TCDD	3.09		
					1,2,3,7,8-PeCDD	8.46		
					1,2,3,4,7,8-HxCDD	4.24		
					1,2,3,6,7,8-HxCDD	18.1		
					1,2,3,7,8,9-HxCDD	10.6		
					1,2,3,4,6,7,8-HpCDD	132		
					1,2,3,4,6,7,8,9-OCDD	498 B		
					2,3,7,8-TCDF	10.9		
					1,2,3,7,8-PeCDF	7.52		
					2,3,4,7,8-PeCDF	315		
					1,2,3,4,7,8-HxCDF	19.4		
					1,2,3,6,7,8-HxCDF	53.2 D		
					2,3,4,6,7,8-HxCDF	122		
					1,2,3,7,8,9-HxCDF	15.8		
					1,2,3,4,6,7,8-HpCDF	60.8		
					1,2,3,4,7,8,9-HpCDF	5.79		
					1,2,3,4,6,7,8,9-OCDF	55.8		
					Total TCDD	56.6		
					Total PeCDD	119		
					Total HxCDD	223		
					Total HpCDD	265		
					Total TCDF	1760 D		
					Total PeCDF	4180 D		
					Total HxCDF	1580 D		
					Total HpCDF	157		
2,3,7,8-TCDD TEQ (ITEF)	197							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-5.61	20	Soil	4/19/2006	DP-5.61-20	2,3,7,8-TCDD	ND	0.0243	
					1,2,3,7,8-PeCDD	ND	0.0376	
					1,2,3,4,7,8-HxCDD	ND	0.0419	
					1,2,3,6,7,8-HxCDD	ND	0.0413	
					1,2,3,7,8,9-HxCDD	ND	0.0419	
					1,2,3,4,6,7,8-HpCDD	0.237 J		
					1,2,3,4,6,7,8,9-OCDD	1.56 J,Bu		
					2,3,7,8-TCDF	ND	0.0349	
					1,2,3,7,8-PeCDF	ND	0.0307	
					2,3,4,7,8-PeCDF	ND	0.0283	
					1,2,3,4,7,8-HxCDF	ND	0.0216	
					1,2,3,6,7,8-HxCDF	ND	0.0204	
					2,3,4,6,7,8-HxCDF	ND	0.0217	
					1,2,3,7,8,9-HxCDF	ND	0.0317	
					1,2,3,4,6,7,8-HpCDF	0.0476 J		
					1,2,3,4,7,8,9-HpCDF	ND	0.0237	
					1,2,3,4,6,7,8,9-OCDF	ND	0.0459	
					Total TCDD	ND	0.0243	
					Total PeCDD	ND	0.0376	
					Total HxCDD	0.147		
					Total HpCDD	0.41		
					Total TCDF	ND	0.0349	
					Total PeCDF	0.159		
					Total HxCDF	0.166		
					Total HpCDF	0.0923		
					2,3,7,8-TCDD TEQ (ITEF)	0.003		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-5.62	4	Soil	4/24/2006	DP-5.62-4	2,3,7,8-TCDD	4.11		
					1,2,3,7,8-PeCDD	24		
					1,2,3,4,7,8-HxCDD	24.9		
					1,2,3,6,7,8-HxCDD	81.8		
					1,2,3,7,8,9-HxCDD	51.8		
					1,2,3,4,6,7,8-HpCDD	1140		
					1,2,3,4,6,7,8,9-OCDD	10100 B		
					2,3,7,8-TCDF	3.33		
					1,2,3,7,8-PeCDF	2.92		
					2,3,4,7,8-PeCDF	9.01		
					1,2,3,4,7,8-HxCDF	12.7		
					1,2,3,6,7,8-HxCDF	11.2 D		
					2,3,4,6,7,8-HxCDF	14.4		
					1,2,3,7,8,9-HxCDF	2.94		
					1,2,3,4,6,7,8-HpCDF	253 D		
					1,2,3,4,7,8,9-HpCDF	14.2		
					1,2,3,4,6,7,8,9-OCDF	804		
					Total TCDD	26.9		
					Total PeCDD	79.7		
					Total HxCDD	492		
					Total HpCDD	1910		
					Total TCDF	68.7 D		
					Total PeCDF	145 D		
					Total HxCDF	340 D		
Total HpCDF	749 D							
2,3,7,8-TCDD TEQ (ITEF)	68.2							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-5.62	9	Soil	4/24/2006	DP-5.62-9	2,3,7,8-TCDD	5.56		
					1,2,3,7,8-PeCDD	16		
					1,2,3,4,7,8-HxCDD	14.8		
					1,2,3,6,7,8-HxCDD	52.7		
					1,2,3,7,8,9-HxCDD	43.2		
					1,2,3,4,6,7,8-HpCDD	996		
					1,2,3,4,6,7,8,9-OCDD	4200 B		
					2,3,7,8-TCDF	2.7		
					1,2,3,7,8-PeCDF	2.13 J		
					2,3,4,7,8-PeCDF	24.3		
					1,2,3,4,7,8-HxCDF	8.11 J		
					1,2,3,6,7,8-HxCDF	10.1 D		
					2,3,4,6,7,8-HxCDF	14		
					1,2,3,7,8,9-HxCDF	3.1 J		
					1,2,3,4,6,7,8-HpCDF	133 D		
					1,2,3,4,7,8,9-HpCDF	8.01 J		
					1,2,3,4,6,7,8,9-OCDF	422		
					Total TCDD	24.8		
					Total PeCDD	72.3		
					Total HxCDD	467		
					Total HpCDD	1650		
					Total TCDF	147 D		
					Total PeCDF	324 D		
					Total HxCDF	275 D		
Total HpCDF	400 D							
2,3,7,8-TCDD TEQ (ITEF)	60.6							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-5.62	14	Soil	4/24/2006	DP-5.62-14	2,3,7,8-TCDD	0.218 J		
					1,2,3,7,8-PeCDD	0.223 J		
					1,2,3,4,7,8-HxCDD	0.16 J		
					1,2,3,6,7,8-HxCDD	0.387 J		
					1,2,3,7,8,9-HxCDD	0.524 J		
					1,2,3,4,6,7,8-HpCDD	2.16 J		
					1,2,3,4,6,7,8,9-OCDD	5.29 Bu		
					2,3,7,8-TCDF	1.84		
					1,2,3,7,8-PeCDF	0.655 J		
					2,3,4,7,8-PeCDF	0.51 J		
					1,2,3,4,7,8-HxCDF	ND		0.214
					1,2,3,6,7,8-HxCDF	0.239 J		
					2,3,4,6,7,8-HxCDF	0.205 J		
					1,2,3,7,8,9-HxCDF	0.471 J		
					1,2,3,4,6,7,8-HpCDF	0.422 J		
					1,2,3,4,7,8,9-HpCDF	0.14 J		
					1,2,3,4,6,7,8,9-OCDF	0.362 J		
					Total TCDD	13.8		
					Total PeCDD	10.1		
					Total HxCDD	15.3		
					Total HpCDD	3.47		
					Total TCDF	33.9		
					Total PeCDF	6.52		
					Total HxCDF	2.29		
					Total HpCDF	0.756		
					2,3,7,8-TCDD TEQ (ITEF)	1.14		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-5.63	12	Soil	4/25/2006	DP-5.63-12	2,3,7,8-TCDD	10		
					1,2,3,7,8-PeCDD	1.7 J		
					1,2,3,4,7,8-HxCDD	1.67 J		
					1,2,3,6,7,8-HxCDD	5.28		
					1,2,3,7,8,9-HxCDD	3.39		
					1,2,3,4,6,7,8-HpCDD	84.1		
					1,2,3,4,6,7,8,9-OCDD	553 B		
					2,3,7,8-TCDF	1.53		
					1,2,3,7,8-PeCDF	0.939 J		
					2,3,4,7,8-PeCDF	24.8		
					1,2,3,4,7,8-HxCDF	2.28 J		
					1,2,3,6,7,8-HxCDF	4.34 D		
					2,3,4,6,7,8-HxCDF	9.42		
					1,2,3,7,8,9-HxCDF	1.39 J		
					1,2,3,4,6,7,8-HpCDF	28.7		
					1,2,3,4,7,8,9-HpCDF	1.47 J		
					1,2,3,4,6,7,8,9-OCDF	65.8		
					Total TCDD	19.2		
					Total PeCDD	15.3		
					Total HxCDD	45.7		
					Total HpCDD	154		
					Total TCDF	106 D		
					Total PeCDF	287 D		
					Total HxCDF	148 D		
Total HpCDF	79.4							
2,3,7,8-TCDD TEQ (ITEF)	28.3							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
AS-7.1	0	Fly Ash Cinder	10/24/2005	AS-7.1	2,3,7,8-TCDD	124		
					1,2,3,7,8-PeCDD	230		
					1,2,3,4,7,8-HxCDD	159		
					1,2,3,6,7,8-HxCDD	237		
					1,2,3,7,8,9-HxCDD	222		
					1,2,3,4,6,7,8-HpCDD	1020		
					1,2,3,4,6,7,8,9-OCDD	1060		
					2,3,7,8-TCDF	982		
					1,2,3,7,8-PeCDF	494		
					2,3,4,7,8-PeCDF	695		
					1,2,3,4,7,8-HxCDF	230		
					1,2,3,6,7,8-HxCDF	260 D		
					2,3,4,6,7,8-HxCDF	309		
					1,2,3,7,8,9-HxCDF	108		
					1,2,3,4,6,7,8-HpCDF	290		
					1,2,3,4,7,8,9-HpCDF	92		
					1,2,3,4,6,7,8,9-OCDF	109		
					Total TCDD	3650		
					Total PeCDD	3760		
					Total HxCDD	3540		
					Total HpCDD	1680		
					Total TCDF	16300 D		
					Total PeCDF	6790 D		
					Total HxCDF	2420 D		
					Total HpCDF	653		
					2,3,7,8-TCDD TEQ (ITEF)	992		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
AS-7.1	0	Plant Tissue	5/3/2006	AS-7.1-GRASS	2,3,7,8-TCDD	ND	0.0528	
					1,2,3,7,8-PeCDD	ND		0.135
					1,2,3,4,7,8-HxCDD	ND	0.0753	
					1,2,3,6,7,8-HxCDD	ND	0.0803	
					1,2,3,7,8,9-HxCDD	ND	0.0786	
					1,2,3,4,6,7,8-HpCDD	0.851 J		
					1,2,3,4,6,7,8,9-OCDD	4.72 J		
					2,3,7,8-TCDF	0.406 J		
					1,2,3,7,8-PeCDF	0.187 J		
					2,3,4,7,8-PeCDF	ND	0.0685	
					1,2,3,4,7,8-HxCDF	ND	0.0517	
					1,2,3,6,7,8-HxCDF	ND	0.0516	
					2,3,4,6,7,8-HxCDF	ND	0.0578	
					1,2,3,7,8,9-HxCDF	ND	0.079	
					1,2,3,4,6,7,8-HpCDF	0.444 J,Bu		
					1,2,3,4,7,8,9-HpCDF	ND	0.114	
					1,2,3,4,6,7,8,9-OCDF	1 J,Bu		
					Total TCDD	1.06		
					Total PeCDD	1.99		
					Total HxCDD	1.94		
					Total HpCDD	2.24		
					Total TCDF	7.02		
					Total PeCDF	2.01 B		
					Total HxCDF	0.49 Bj+		
					Total HpCDF	0.654 Bj+		
					2,3,7,8-TCDD TEQ (ITEF)	0.0635		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
AS-7.2	0	Fly Ash Cinder	10/24/2005	AS-7.2	2,3,7,8-TCDD	146		
					1,2,3,7,8-PeCDD	154		
					1,2,3,4,7,8-HxCDD	66.4		
					1,2,3,6,7,8-HxCDD	68.7		
					1,2,3,7,8,9-HxCDD	69.5		
					1,2,3,4,6,7,8-HpCDD	195		
					1,2,3,4,6,7,8,9-OCDD	233		
					2,3,7,8-TCDF	1110		
					1,2,3,7,8-PeCDF	420		
					2,3,4,7,8-PeCDF	533		
					1,2,3,4,7,8-HxCDF	120		
					1,2,3,6,7,8-HxCDF	138 D		
					2,3,4,6,7,8-HxCDF	145		
					1,2,3,7,8,9-HxCDF	46.2		
					1,2,3,4,6,7,8-HpCDF	88.7		
					1,2,3,4,7,8,9-HpCDF	23.9		
					1,2,3,4,6,7,8,9-OCDF	24.1		
					Total TCDD	2170		
					Total PeCDD	1540		
					Total HxCDD	938		
					Total HpCDD	343		
					Total TCDF	16300 D		
					Total PeCDF	5200 D		
					Total HxCDF	1220 D		
					Total HpCDF	188		
					2,3,7,8-TCDD TEQ (ITEF)	766		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
AS-7.2	0	Plant Tissue	5/3/2006	AS-7.2-GRASS	2,3,7,8-TCDD	ND		0.166
					1,2,3,7,8-PeCDD	0.238 J		
					1,2,3,4,7,8-HxCDD	0.109 J		
					1,2,3,6,7,8-HxCDD	ND		0.168
					1,2,3,7,8,9-HxCDD	0.137 J		
					1,2,3,4,6,7,8-HpCDD	1.07 J		
					1,2,3,4,6,7,8,9-OCDD	4.29 J		
					2,3,7,8-TCDF	0.657 J		
					1,2,3,7,8-PeCDF	0.31 J		
					2,3,4,7,8-PeCDF	0.459 J		
					1,2,3,4,7,8-HxCDF	0.175 J,Bu		
					1,2,3,6,7,8-HxCDF	0.184 J,Bu		
					2,3,4,6,7,8-HxCDF	0.214 J		
					1,2,3,7,8,9-HxCDF	ND	0.0672	
					1,2,3,4,6,7,8-HpCDF	0.338 J,Bu		
					1,2,3,4,7,8,9-HpCDF	ND	0.0733	
					1,2,3,4,6,7,8,9-OCDF	ND		0.581
					Total TCDD	2.42		
					Total PeCDD	2.68		
					Total HxCDD	2.75		
					Total HpCDD	2.4		
					Total TCDF	13.2		
					Total PeCDF	4.7 B		
					Total HxCDF	1.71 Bj+		
					Total HpCDF	0.53 Bj+		
					2,3,7,8-TCDD TEQ (ITEF)	0.646		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
AS-7.3	0	Fly Ash Cinder	2/14/2006	AS-7.3-COMPOSITE	2,3,7,8-TCDD	83.6		
					1,2,3,7,8-PeCDD	225		
					1,2,3,4,7,8-HxCDD	151		
					1,2,3,6,7,8-HxCDD	243		
					1,2,3,7,8,9-HxCDD	197		
					1,2,3,4,6,7,8-HpCDD	981		
					1,2,3,4,6,7,8,9-OCDD	1190		
					2,3,7,8-TCDF	494		
					1,2,3,7,8-PeCDF	290		
					2,3,4,7,8-PeCDF	495		
					1,2,3,4,7,8-HxCDF	191		
					1,2,3,6,7,8-HxCDF	210		
					2,3,4,6,7,8-HxCDF	273		
					1,2,3,7,8,9-HxCDF	80.2		
					1,2,3,4,6,7,8-HpCDF	271		
					1,2,3,4,7,8,9-HpCDF	75.4		
					1,2,3,4,6,7,8,9-OCDF	108		
					Total TCDD	2760		
					Total PeCDD	3580		
					Total HxCDD	3180		
					Total HpCDD	1830		
					Total TCDF	9980		
					Total PeCDF	4700		
Total HxCDF	2060							
Total HpCDF	617							
2,3,7,8-TCDD TEQ (ITEF)	768							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
AS-7.4	5	Fly Ash Cinder	5/16/2006	AS-7.4-5	2,3,7,8-TCDD	19.3		
					1,2,3,7,8-PeCDD	16.1		
					1,2,3,4,7,8-HxCDD	7.09		
					1,2,3,6,7,8-HxCDD	9.36		
					1,2,3,7,8,9-HxCDD	8.11		
					1,2,3,4,6,7,8-HpCDD	28.9		
					1,2,3,4,6,7,8,9-OCDD	32.7		
					2,3,7,8-TCDF	180		
					1,2,3,7,8-PeCDF	60.7		
					2,3,4,7,8-PeCDF	72.4		
					1,2,3,4,7,8-HxCDF	18.8		
					1,2,3,6,7,8-HxCDF	21.2		
					2,3,4,6,7,8-HxCDF	20.7		
					1,2,3,7,8,9-HxCDF	8.17		
					1,2,3,4,6,7,8-HpCDF	15.8 B		
					1,2,3,4,7,8,9-HpCDF	5.19		
					1,2,3,4,6,7,8,9-OCDF	4.99 J		
					Total TCDD	389		
					Total PeCDD	240		
					Total HxCDD	166		
					Total HpCDD	51.2		
					Total TCDF	2370		
					Total PeCDF	744 D		
					Total HxCDF	198 B,D		
					Total HpCDF	33.9 B		
					2,3,7,8-TCDD TEQ (ITEF)	102		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.9	5	Soil	4/12/2006	DP-7.9-5	2,3,7,8-TCDD	1.75		
					1,2,3,7,8-PeCDD	1.43 J		
					1,2,3,4,7,8-HxCDD	0.6 J		
					1,2,3,6,7,8-HxCDD	0.871 J		
					1,2,3,7,8,9-HxCDD	0.688 J		
					1,2,3,4,6,7,8-HpCDD	4.48		
					1,2,3,4,6,7,8,9-OCDD	17		
					2,3,7,8-TCDF	17.3		
					1,2,3,7,8-PeCDF	5.03		
					2,3,4,7,8-PeCDF	6.03		
					1,2,3,4,7,8-HxCDF	1.33 J		
					1,2,3,6,7,8-HxCDF	1.46 J		
					2,3,4,6,7,8-HxCDF	1.53 J		
					1,2,3,7,8,9-HxCDF	0.565 J		
					1,2,3,4,6,7,8-HpCDF	1.43 J		
					1,2,3,4,7,8,9-HpCDF	ND	0.295	
					1,2,3,4,6,7,8,9-OCDF	1.81 J		
					Total TCDD	20.1		23.5
					Total PeCDD	14.4		14.8
					Total HxCDD	9.33		
					Total HpCDD	8.38		
					Total TCDF	242		
					Total PeCDF	61.7		62.7
					Total HxCDF	14.4 B		
Total HpCDF	3							
2,3,7,8-TCDD TEQ (ITEF)	8.95							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.10	2	Soil	4/12/2006	DP-7.10-2	2,3,7,8-TCDD	0.324 J		
					1,2,3,7,8-PeCDD	ND		0.251
					1,2,3,4,7,8-HxCDD	ND	0.104	
					1,2,3,6,7,8-HxCDD	0.231 J		
					1,2,3,7,8,9-HxCDD	ND	0.1	
					1,2,3,4,6,7,8-HpCDD	1.18 J		
					1,2,3,4,6,7,8,9-OCDD	3.83 J		
					2,3,7,8-TCDF	2.79		
					1,2,3,7,8-PeCDF	0.952 J		
					2,3,4,7,8-PeCDF	1.03 J		
					1,2,3,4,7,8-HxCDF	ND		0.243
					1,2,3,6,7,8-HxCDF	0.3 J		
					2,3,4,6,7,8-HxCDF	0.289 J		
					1,2,3,7,8,9-HxCDF	ND	0.179	
					1,2,3,4,6,7,8-HpCDF	0.296 J		
					1,2,3,4,7,8,9-HpCDF	ND	0.0709	
					1,2,3,4,6,7,8,9-OCDF	ND	0.251	
					Total TCDD	3.77		
					Total PeCDD	1.77		2.82
					Total HxCDD	1.93		
					Total HpCDD	1.98		
					Total TCDF	39.1		40.9
					Total PeCDF	10.6		
					Total HxCDF	1.59 B		1.99
					Total HpCDF	0.296		
					2,3,7,8-TCDD TEQ (ITEF)	1.26		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.11	10	Soil	4/5/2006	DP-7.11-10	2,3,7,8-TCDD	26.7		
					1,2,3,7,8-PeCDD	24.7		
					1,2,3,4,7,8-HxCDD	14		
					1,2,3,6,7,8-HxCDD	26.9		
					1,2,3,7,8,9-HxCDD	26.3		
					1,2,3,4,6,7,8-HpCDD	728		
					1,2,3,4,6,7,8,9-OCDD	6090		
					2,3,7,8-TCDF	244		
					1,2,3,7,8-PeCDF	69.8		
					2,3,4,7,8-PeCDF	90.2		
					1,2,3,4,7,8-HxCDF	23.7		
					1,2,3,6,7,8-HxCDF	25.8 D		
					2,3,4,6,7,8-HxCDF	28.5		
					1,2,3,7,8,9-HxCDF	8.01		
					1,2,3,4,6,7,8-HpCDF	162		
					1,2,3,4,7,8,9-HpCDF	19.9		
					1,2,3,4,6,7,8,9-OCDF	605		
					Total TCDD	389		
					Total PeCDD	265		
					Total HxCDD	222		
					Total HpCDD	1080		
					Total TCDF	3550		
					Total PeCDF	902 D		
Total HxCDF	327 B,D							
Total HpCDF	509							
2,3,7,8-TCDD TEQ (ITEF)	149							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.12	10	Soil	4/5/2006	DP-7.12-10	2,3,7,8-TCDD	ND	0.154	
					1,2,3,7,8-PeCDD	ND	0.148	
					1,2,3,4,7,8-HxCDD	ND	0.212	
					1,2,3,6,7,8-HxCDD	ND	0.211	
					1,2,3,7,8,9-HxCDD	ND	0.205	
					1,2,3,4,6,7,8-HpCDD	1.17 J		
					1,2,3,4,6,7,8,9-OCDD	10.6		
					2,3,7,8-TCDF	0.299 J		
					1,2,3,7,8-PeCDF	ND	0.233	
					2,3,4,7,8-PeCDF	ND	0.239	
					1,2,3,4,7,8-HxCDF	ND	0.0815	
					1,2,3,6,7,8-HxCDF	ND	0.0789	
					2,3,4,6,7,8-HxCDF	ND	0.0888	
					1,2,3,7,8,9-HxCDF	ND	0.146	
					1,2,3,4,6,7,8-HpCDF	0.195 J		
					1,2,3,4,7,8,9-HpCDF	ND	0.239	
					1,2,3,4,6,7,8,9-OCDF	1.04 J		
					Total TCDD	ND	0.154	
					Total PeCDD	ND	0.148	
					Total HxCDD	ND	0.209	
					Total HpCDD	1.17		
					Total TCDF	1.25		
					Total PeCDF	ND	0.236	
					Total HxCDF	ND	0.0952	
					Total HpCDF	0.195		
					2,3,7,8-TCDD TEQ (ITEF)	0.0447		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.13	8	Soil	4/6/2006	DP-7.13-8	2,3,7,8-TCDD	37.7		
					1,2,3,7,8-PeCDD	48.8		
					1,2,3,4,7,8-HxCDD	21.8		
					1,2,3,6,7,8-HxCDD	82.4		
					1,2,3,7,8,9-HxCDD	46.3		
					1,2,3,4,6,7,8-HpCDD	286		
					1,2,3,4,6,7,8,9-OCDD	833		
					2,3,7,8-TCDF	350		
					1,2,3,7,8-PeCDF	111		
					2,3,4,7,8-PeCDF	155		
					1,2,3,4,7,8-HxCDF	37.8		
					1,2,3,6,7,8-HxCDF	47		
					2,3,4,6,7,8-HxCDF	51.5		
					1,2,3,7,8,9-HxCDF	16.7		
					1,2,3,4,6,7,8-HpCDF	43.9		
					1,2,3,4,7,8,9-HpCDF	11.3		
					1,2,3,4,6,7,8,9-OCDF	26.4		
					Total TCDD	632		
					Total PeCDD	527		
					Total HxCDD	852		
					Total HpCDD	532		
					Total TCDF	5240		
					Total PeCDF	1610 D		
Total HxCDF	471 B							
Total HpCDF	99							
2,3,7,8-TCDD TEQ (ITEF)	238							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.13	15	Soil	4/5/2006	DP-7.13-15b	2,3,7,8-TCDD	ND uj	0.0923	
					1,2,3,7,8-PeCDD	ND uj	0.119	
					1,2,3,4,7,8-HxCDD	ND uj	0.117	
					1,2,3,6,7,8-HxCDD	ND uj	0.118	
					1,2,3,7,8,9-HxCDD	ND uj	0.113	
					1,2,3,4,6,7,8-HpCDD	ND uj	0.228	
					1,2,3,4,6,7,8,9-OCDD	ND uj	0.473	
					2,3,7,8-TCDF	ND uj	0.0673	
					1,2,3,7,8-PeCDF	ND uj	0.124	
					2,3,4,7,8-PeCDF	ND uj	0.125	
					1,2,3,4,7,8-HxCDF	ND uj	0.0447	
					1,2,3,6,7,8-HxCDF	ND uj	0.041	
					2,3,4,6,7,8-HxCDF	ND uj	0.0431	
					1,2,3,7,8,9-HxCDF	ND uj	0.0588	
					1,2,3,4,6,7,8-HpCDF	ND uj	0.0601	
					1,2,3,4,7,8,9-HpCDF	ND uj	0.0674	
					1,2,3,4,6,7,8,9-OCDF	ND uj	0.301	
					Total TCDD	ND uj	0.0923	
					Total PeCDD	ND uj	0.259	
					Total HxCDD	ND uj	0.116	
					Total HpCDD	ND uj	0.228	
					Total TCDF	ND uj	0.0673	
					Total PeCDF	ND uj	0.124	
					Total HxCDF	ND uj	0.0463	
					Total HpCDF	ND uj	0.0636	
2,3,7,8-TCDD TEQ (ITEF)	0							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.14	7	Soil	4/6/2006	DP-7.14-7	2,3,7,8-TCDD	13.3		
					1,2,3,7,8-PeCDD	14.9		
					1,2,3,4,7,8-HxCDD	6.61 J		
					1,2,3,6,7,8-HxCDD	66.2		
					1,2,3,7,8,9-HxCDD	24.8		
					1,2,3,4,6,7,8-HpCDD	358		
					1,2,3,4,6,7,8,9-OCDD	1830		
					2,3,7,8-TCDF	121		
					1,2,3,7,8-PeCDF	33.6		
					2,3,4,7,8-PeCDF	46.7		
					1,2,3,4,7,8-HxCDF	10.9		
					1,2,3,6,7,8-HxCDF	15.6		
					2,3,4,6,7,8-HxCDF	16.7		
					1,2,3,7,8,9-HxCDF	5.36 J		
					1,2,3,4,6,7,8-HpCDF	69.9		
					1,2,3,4,7,8,9-HpCDF	5.72 J		
					1,2,3,4,6,7,8,9-OCDF	100		
					Total TCDD	163		166
					Total PeCDD	132		
					Total HxCDD	500		
					Total HpCDD	761		
					Total TCDF	1680		
					Total PeCDF	556		
Total HxCDF	280 B							
Total HpCDF	183							
2,3,7,8-TCDD TEQ (ITEF)	84.5							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.15	8	Soil	4/6/2006	DP-7.15-8	2,3,7,8-TCDD	21.1		
					1,2,3,7,8-PeCDD	43.9		
					1,2,3,4,7,8-HxCDD	30.1		
					1,2,3,6,7,8-HxCDD	45.9		
					1,2,3,7,8,9-HxCDD	42.1		
					1,2,3,4,6,7,8-HpCDD	420		
					1,2,3,4,6,7,8,9-OCDD	2160		
					2,3,7,8-TCDF	146		
					1,2,3,7,8-PeCDF	67.3		
					2,3,4,7,8-PeCDF	102		
					1,2,3,4,7,8-HxCDF	40		
					1,2,3,6,7,8-HxCDF	43.2		
					2,3,4,6,7,8-HxCDF	50.7		
					1,2,3,7,8,9-HxCDF	16.4		
					1,2,3,4,6,7,8-HpCDF	123		
					1,2,3,4,7,8,9-HpCDF	18.4		
					1,2,3,4,6,7,8,9-OCDF	190		
					Total TCDD	444		
					Total PeCDD	531		
					Total HxCDD	519		
					Total HpCDD	711		
					Total TCDF	2370		
					Total PeCDF	1050		
Total HxCDF	480 B,D							
Total HpCDF	287							
2,3,7,8-TCDD TEQ (ITEF)	167							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.16	10	Soil	4/10/2006	DP-7.16-10	2,3,7,8-TCDD	ND	0.0968	
					1,2,3,7,8-PeCDD	ND	0.102	
					1,2,3,4,7,8-HxCDD	ND	0.194	
					1,2,3,6,7,8-HxCDD	ND	0.2	
					1,2,3,7,8,9-HxCDD	ND	0.191	
					1,2,3,4,6,7,8-HpCDD	ND	0.168	
					1,2,3,4,6,7,8,9-OCDD	ND	0.324	
					2,3,7,8-TCDF	ND	0.0696	
					1,2,3,7,8-PeCDF	ND	0.181	
					2,3,4,7,8-PeCDF	ND	0.17	
					1,2,3,4,7,8-HxCDF	ND	0.0473	
					1,2,3,6,7,8-HxCDF	ND	0.0418	
					2,3,4,6,7,8-HxCDF	ND	0.0519	
					1,2,3,7,8,9-HxCDF	ND	0.0838	
					1,2,3,4,6,7,8-HpCDF	ND	0.0741	
					1,2,3,4,7,8,9-HpCDF	ND	0.0855	
					1,2,3,4,6,7,8,9-OCDF	ND	0.237	
					Total TCDD	ND	0.0968	
					Total PeCDD	ND	0.102	
					Total HxCDD	ND	0.195	
					Total HpCDD	ND	0.168	
					Total TCDF	ND	0.0696	
					Total PeCDF	ND	0.175	
					Total HxCDF	ND	0.0534	
					Total HpCDF	ND	0.0791	
					2,3,7,8-TCDD TEQ (ITEF)	0		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.17	5	Soil	4/13/2006	DP-7.17-5	2,3,7,8-TCDD	ND	0.118	
					1,2,3,7,8-PeCDD	ND	0.147	
					1,2,3,4,7,8-HxCDD	ND	0.225	
					1,2,3,6,7,8-HxCDD	ND	0.244	
					1,2,3,7,8,9-HxCDD	ND	0.227	
					1,2,3,4,6,7,8-HpCDD	0.41 J		
					1,2,3,4,6,7,8,9-OCDD	1.66 J		
					2,3,7,8-TCDF	ND	0.206	
					1,2,3,7,8-PeCDF	ND	0.287	
					2,3,4,7,8-PeCDF	ND	0.292	
					1,2,3,4,7,8-HxCDF	ND	0.0725	
					1,2,3,6,7,8-HxCDF	ND	0.063	
					2,3,4,6,7,8-HxCDF	0.125 J		
					1,2,3,7,8,9-HxCDF	ND	0.0995	
					1,2,3,4,6,7,8-HpCDF	0.272 J		
					1,2,3,4,7,8,9-HpCDF	ND	0.192	
					1,2,3,4,6,7,8,9-OCDF	0.61 J		
					Total TCDD	ND	0.118	
					Total PeCDD	ND	0.147	
					Total HxCDD	ND	0.232	
					Total HpCDD	0.773		
					Total TCDF	0.177		
					Total PeCDF	ND	0.29	
					Total HxCDF	0.284 B		
					Total HpCDF	0.272 j+		
					2,3,7,8-TCDD TEQ (ITEF)	0.0195		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-7.18	5	Soil	4/13/2006	DP-7.18-5	2,3,7,8-TCDD	0.22 J		
					1,2,3,7,8-PeCDD	0.462 J		
					1,2,3,4,7,8-HxCDD	0.338 J		
					1,2,3,6,7,8-HxCDD	0.479 J		
					1,2,3,7,8,9-HxCDD	ND		0.446
					1,2,3,4,6,7,8-HpCDD	1.95 J		
					1,2,3,4,6,7,8,9-OCDD	3.67 J		
					2,3,7,8-TCDF	1.65		
					1,2,3,7,8-PeCDF	0.841 J		
					2,3,4,7,8-PeCDF	1.18 J		
					1,2,3,4,7,8-HxCDF	0.45 J		
					1,2,3,6,7,8-HxCDF	0.424 J		
					2,3,4,6,7,8-HxCDF	0.494 J		
					1,2,3,7,8,9-HxCDF	0.281 J		
					1,2,3,4,6,7,8-HpCDF	0.599 J		
					1,2,3,4,7,8,9-HpCDF	ND	0.0838	
					1,2,3,4,6,7,8,9-OCDF	ND	0.272	
					Total TCDD	5.83		6.07
					Total PeCDD	4.97		6.34
					Total HxCDD	5.69		6.13
					Total HpCDD	3.52		
					Total TCDF	28.6		
					Total PeCDF	8.93		10.3
					Total HxCDF	3.72 B		4.08
					Total HpCDF	0.844		
					2,3,7,8-TCDD TEQ (ITEF)	1.75		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
SL-7.1	0.6	Soil	5/3/2006	SL-7.1-0.6	2,3,7,8-TCDD	3.53		
					1,2,3,7,8-PeCDD	7.86		
					1,2,3,4,7,8-HxCDD	4.99		
					1,2,3,6,7,8-HxCDD	9.51		
					1,2,3,7,8,9-HxCDD	6.82		
					1,2,3,4,6,7,8-HpCDD	78.4		
					1,2,3,4,6,7,8,9-OCDD	470		
					2,3,7,8-TCDF	25.1		
					1,2,3,7,8-PeCDF	12.3		
					2,3,4,7,8-PeCDF	18.4		
					1,2,3,4,7,8-HxCDF	6.27 B		
					1,2,3,6,7,8-HxCDF	7.23 B		
					2,3,4,6,7,8-HxCDF	8.29		
					1,2,3,7,8,9-HxCDF	2.62		
					1,2,3,4,6,7,8-HpCDF	16.9 B		
					1,2,3,4,7,8,9-HpCDF	2.48 J		
					1,2,3,4,6,7,8,9-OCDF	32.1 B		
					Total TCDD	111		
					Total PeCDD	122		
					Total HxCDD	143		
					Total HpCDD	166		
					Total TCDF	468		
					Total PeCDF	195 B		
Total HxCDF	74.4 B							
Total HpCDF	37.3 B							
2,3,7,8-TCDD TEQ (ITEF)	29.3							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
SL-7.2	0.6	Soil	5/3/2006	SL-7.2-0.6	2,3,7,8-TCDD	0.271 J		
					1,2,3,7,8-PeCDD	0.243 J		
					1,2,3,4,7,8-HxCDD	ND		0.176
					1,2,3,6,7,8-HxCDD	0.643 J		
					1,2,3,7,8,9-HxCDD	0.415 J		
					1,2,3,4,6,7,8-HpCDD	11		
					1,2,3,4,6,7,8,9-OCDD	99.9		
					2,3,7,8-TCDF	1.9		
					1,2,3,7,8-PeCDF	0.583 J		
					2,3,4,7,8-PeCDF	0.753 J		
					1,2,3,4,7,8-HxCDF	0.268 J,Bu		
					1,2,3,6,7,8-HxCDF	0.299 J,Bu		
					2,3,4,6,7,8-HxCDF	0.263 J		
					1,2,3,7,8,9-HxCDF	ND	0.0612	
					1,2,3,4,6,7,8-HpCDF	2.34 J,Bu		
					1,2,3,4,7,8,9-HpCDF	0.187 J		
					1,2,3,4,6,7,8,9-OCDF	5.94 B		
					Total TCDD	3.19		
					Total PeCDD	2.65		
					Total HxCDD	5.31		
					Total HpCDD	20.4		
					Total TCDF	27.2		
					Total PeCDF	8.22 B		
					Total HxCDF	4.19 Bj+		
					Total HpCDF	5.94 Bj+		
					2,3,7,8-TCDD TEQ (ITEF)	1.44		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
SL-7.3	0.6	Soil	5/3/2006	SL-7.3-0.6	2,3,7,8-TCDD	0.41 J		
					1,2,3,7,8-PeCDD	0.719 J		
					1,2,3,4,7,8-HxCDD	0.648 J		
					1,2,3,6,7,8-HxCDD	1.54 J		
					1,2,3,7,8,9-HxCDD	1.19 J		
					1,2,3,4,6,7,8-HpCDD	25.8		
					1,2,3,4,6,7,8,9-OCDD	250		
					2,3,7,8-TCDF	2.99		
					1,2,3,7,8-PeCDF	1.12 J		
					2,3,4,7,8-PeCDF	1.66 J		
					1,2,3,4,7,8-HxCDF	0.67 J,B		
					1,2,3,6,7,8-HxCDF	0.736 J,B		
					2,3,4,6,7,8-HxCDF	ND		0.83
					1,2,3,7,8,9-HxCDF	0.285 J		
					1,2,3,4,6,7,8-HpCDF	6.06 B		
					1,2,3,4,7,8,9-HpCDF	0.435 J		
					1,2,3,4,6,7,8,9-OCDF	16.5 B		
					Total TCDD	9.66		
					Total PeCDD	9.48		
					Total HxCDD	16.1		
					Total HpCDD	50.2		
					Total TCDF	48		
					Total PeCDF	18.8 B		
					Total HxCDF	11.3 B		
					Total HpCDF	14.4 B		
2,3,7,8-TCDD TEQ (ITEF)	3.17							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-8.7	2	Soil	1/24/2006	DP-8.7-2b	2,3,7,8-TCDD	ND	0.131	
					1,2,3,7,8-PeCDD	ND	0.134	
					1,2,3,4,7,8-HxCDD	ND	0.103	
					1,2,3,6,7,8-HxCDD	0.238 J		
					1,2,3,7,8,9-HxCDD	ND	0.155	
					1,2,3,4,6,7,8-HpCDD	1.86 J		
					1,2,3,4,6,7,8,9-OCDD	8.54		
					2,3,7,8-TCDF	ND	0.143	
					1,2,3,7,8-PeCDF	ND	0.165	
					2,3,4,7,8-PeCDF	ND	0.148	
					1,2,3,4,7,8-HxCDF	ND	0.052	
					1,2,3,6,7,8-HxCDF	ND	0.0517	
					2,3,4,6,7,8-HxCDF	ND	0.0565	
					1,2,3,7,8,9-HxCDF	0.484 J		
					1,2,3,4,6,7,8-HpCDF	ND		0.214
					1,2,3,4,7,8,9-HpCDF	ND	0.0712	
					1,2,3,4,6,7,8,9-OCDF	ND	0.272	
					Total TCDD	ND	0.131	
					Total PeCDD	ND	0.134	
					Total HxCDD	0.724		1.24
					Total HpCDD	2.6		
					Total TCDF	1.61		
					Total PeCDF	ND	0.154	
					Total HxCDF	0.484		
					Total HpCDF	ND		0.214
					2,3,7,8-TCDD TEQ (ITEF)	0.0917		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-8.9	2.5	Soil	1/24/2006	DP-8.9-2.5b	2,3,7,8-TCDD	ND	0.153	
					1,2,3,7,8-PeCDD	0.318 J		
					1,2,3,4,7,8-HxCDD	0.323 J		
					1,2,3,6,7,8-HxCDD	3.45		
					1,2,3,7,8,9-HxCDD	1.42 J		
					1,2,3,4,6,7,8-HpCDD	54.6		
					1,2,3,4,6,7,8,9-OCDD	426		
					2,3,7,8-TCDF	0.476 J		
					1,2,3,7,8-PeCDF	0.235 J		
					2,3,4,7,8-PeCDF	0.489 J		
					1,2,3,4,7,8-HxCDF	0.782 J		
					1,2,3,6,7,8-HxCDF	0.46 J		
					2,3,4,6,7,8-HxCDF	0.608 J		
					1,2,3,7,8,9-HxCDF	ND	0.351	
					1,2,3,4,6,7,8-HpCDF	25.1		
					1,2,3,4,7,8,9-HpCDF	ND		1.01
					1,2,3,4,6,7,8,9-OCDF	66.5		
					Total TCDD	0.794		
					Total PeCDD	1.19		1.59
					Total HxCDD	15.9		
					Total HpCDD	101		
					Total TCDF	5		
					Total PeCDF	3.71		3.96
					Total HxCDF	8.83		
					Total HpCDF	82.9		83.9
2,3,7,8-TCDD TEQ (ITEF)	2.17							

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-10.7	5	Soil	1/25/2006	DP-10.7-5b	2,3,7,8-TCDD	ND	0.148	
					1,2,3,7,8-PeCDD	ND	0.155	
					1,2,3,4,7,8-HxCDD	ND	0.137	
					1,2,3,6,7,8-HxCDD	ND	0.142	
					1,2,3,7,8,9-HxCDD	ND	0.135	
					1,2,3,4,6,7,8-HpCDD	0.301 J		
					1,2,3,4,6,7,8,9-OCDD	3.09 J		
					2,3,7,8-TCDF	ND	0.126	
					1,2,3,7,8-PeCDF	ND	0.125	
					2,3,4,7,8-PeCDF	ND	0.117	
					1,2,3,4,7,8-HxCDF	ND	0.0347	
					1,2,3,6,7,8-HxCDF	ND	0.0354	
					2,3,4,6,7,8-HxCDF	ND	0.0386	
					1,2,3,7,8,9-HxCDF	ND	0.0588	
					1,2,3,4,6,7,8-HpCDF	ND	0.0507	
					1,2,3,4,7,8,9-HpCDF	ND	0.0529	
					1,2,3,4,6,7,8,9-OCDF	ND	0.173	
					Total TCDD	ND	0.148	
					Total PeCDD	ND	0.155	
					Total HxCDD	ND	0.138	
					Total HpCDD	0.512		
					Total TCDF	ND	0.126	
					Total PeCDF	ND	0.121	
					Total HxCDF	ND	0.0408	
					Total HpCDF	ND	0.0517	
					2,3,7,8-TCDD TEQ (ITEF)	0.00332		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
DP-10.9	9.5	Soil	1/26/2006	DP-10.9-9.5b	2,3,7,8-TCDD	ND	0.127	
					1,2,3,7,8-PeCDD	ND	0.167	
					1,2,3,4,7,8-HxCDD	ND	0.136	
					1,2,3,6,7,8-HxCDD	ND	0.152	
					1,2,3,7,8,9-HxCDD	ND	0.139	
					1,2,3,4,6,7,8-HpCDD	ND	0.0915	
					1,2,3,4,6,7,8,9-OCDD	1.33 J		
					2,3,7,8-TCDF	ND	0.106	
					1,2,3,7,8-PeCDF	ND	0.175	
					2,3,4,7,8-PeCDF	ND	0.161	
					1,2,3,4,7,8-HxCDF	ND	0.0392	
					1,2,3,6,7,8-HxCDF	ND	0.0396	
					2,3,4,6,7,8-HxCDF	ND	0.0415	
					1,2,3,7,8,9-HxCDF	ND	0.0574	
					1,2,3,4,6,7,8-HpCDF	ND	0.0519	
					1,2,3,4,7,8,9-HpCDF	ND	0.0575	
					1,2,3,4,6,7,8,9-OCDF	ND	0.236	
					Total TCDD	ND	0.127	
					Total PeCDD	ND	0.167	
					Total HxCDD	ND	0.142	
					Total HpCDD	ND	0.0915	
					Total TCDF	ND	0.106	
					Total PeCDF	ND	0.168	
					Total HxCDF	ND	0.0441	
					Total HpCDF	ND	0.0544	
					2,3,7,8-TCDD TEQ (ITEF)	0.000133		

TABLE 1

**SOIL, SEDIMENT, FLY ASH, AND PLANT MATERIAL ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/g)	MDL (pg/g)	EMPC (pg/g)
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Notes

Samples analyzed by EPA Method 8290.

B = chemical also detected in the method blank

D = reported as EMPC due to possible chlorinated diphenylether interference

EMPC = Estimated Maximum Possible Concentration

EPA = United States Environmental Protection Agency

J or *j* = estimated value (the analyte was positively identified, but the associated numerical result is an estimate [analytical laboratory estimate = upper-case "J," data validation qualifier = lower-case "j"])

j+ = estimated value, high bias

MDL = Method Detection Limit

ND = concentration as reported by analytical laboratory is less than the MDL or EMPC

pg/g = picogram(s) per gram

u = not detected

uj = not detected; associated numerical value is an estimate of the MDL

2,3,7,8-TCDD TEQ (ITEF) = Toxicity Equivalency Quotient value as reported by the laboratory, using 1997 International Toxic Equivalent Factors (ITEF). Where data are qualified "u" (data validation qualifier, not detected), actual TEQ values will be less.

TABLE 2

**GROUND WATER AND SURFACE WATER ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/L)	MDL (pg/L)	EMPC (pg/L)
DP-3.59	5.5	Ground Water	10/10/2005	DP-3.59-DT5.5	2,3,7,8-TCDD	ND	1.82	
					1,2,3,7,8-PeCDD	ND	2.11	
					1,2,3,4,7,8-HxCDD	ND	3.11	
					1,2,3,6,7,8-HxCDD	10.5 J		
					1,2,3,7,8,9-HxCDD	ND	5.37	
					1,2,3,4,6,7,8-HpCDD	191		
					1,2,3,4,6,7,8,9-OCDD	1600		
					2,3,7,8-TCDF	ND	1.45	
					1,2,3,7,8-PeCDF	ND	3.04	
					2,3,4,7,8-PeCDF	ND	2.66	
					1,2,3,4,7,8-HxCDF	3.01 J		
					1,2,3,6,7,8-HxCDF	3.88 J		
					2,3,4,6,7,8-HxCDF	3.55 J		
					1,2,3,7,8,9-HxCDF	3.6 J		
					1,2,3,4,6,7,8-HpCDF	64.5		
					1,2,3,4,7,8,9-HpCDF	ND	4.85	
					1,2,3,4,6,7,8,9-OCDF	116		
					Total TCDD	ND	1.82	
					Total PeCDD	ND	2.11	
					Total HxCDD	48.8		
					Total HpCDD	355		
					Total TCDF	ND	2.65	
					Total PeCDF	15.7		
					Total HxCDF	78.7		
					Total HpCDF	148		
					2,3,7,8-TCDD TEQ (ITEF)	5.18		

TABLE 2

**GROUND WATER AND SURFACE WATER ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/L)	MDL (pg/L)	EMPC (pg/L)
DP-3.60	6	Ground Water	10/10/2005	DP-3.60-DT6.0	2,3,7,8-TCDD	ND	1.48	
					1,2,3,7,8-PeCDD	ND	1.78	
					1,2,3,4,7,8-HxCDD	20.1 J		
					1,2,3,6,7,8-HxCDD	17.2 J		
					1,2,3,7,8,9-HxCDD	4.14 J		
					1,2,3,4,6,7,8-HpCDD	522		
					1,2,3,4,6,7,8,9-OCDD	6460		
					2,3,7,8-TCDF	ND	1.48	
					1,2,3,7,8-PeCDF	ND	3.55	
					2,3,4,7,8-PeCDF	ND	3.3	
					1,2,3,4,7,8-HxCDF	ND		4.2
					1,2,3,6,7,8-HxCDF	4.87 J		
					2,3,4,6,7,8-HxCDF	6.87 J		
					1,2,3,7,8,9-HxCDF	ND	2.45	
					1,2,3,4,6,7,8-HpCDF	262		
					1,2,3,4,7,8,9-HpCDF	12.6 J		
					1,2,3,4,6,7,8,9-OCDF	861		
					Total TCDD	ND	1.48	
					Total PeCDD	ND	1.78	
					Total HxCDD	76.6		
					Total HpCDD	892		
					Total TCDF	ND	2.29	
					Total PeCDF	20.3		
					Total HxCDF	255		259
					Total HpCDF	866		
					2,3,7,8-TCDD TEQ (ITEF)	14		

TABLE 2

**GROUND WATER AND SURFACE WATER ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/L)	MDL (pg/L)	EMPC (pg/L)
Pond 8 Outfall South	0	Surface Water	5/24/2006	Log Pond 8 Outfall	2,3,7,8-TCDD	ND	0.765	
					1,2,3,7,8-PeCDD	ND	0.925	
					1,2,3,4,7,8-HxCDD	ND	0.738	
					1,2,3,6,7,8-HxCDD	ND	0.769	
					1,2,3,7,8,9-HxCDD	ND	0.762	
					1,2,3,4,6,7,8-HpCDD	ND	0.792	
					1,2,3,4,6,7,8,9-OCDD	ND	2.02	
					2,3,7,8-TCDF	ND	1.11	
					1,2,3,7,8-PeCDF	ND	0.704	
					2,3,4,7,8-PeCDF	ND	0.638	
					1,2,3,4,7,8-HxCDF	ND	0.584	
					1,2,3,6,7,8-HxCDF	ND	0.527	
					2,3,4,6,7,8-HxCDF	ND	0.649	
					1,2,3,7,8,9-HxCDF	ND	0.836	
					1,2,3,4,6,7,8-HpCDF	ND	0.971	
					1,2,3,4,7,8,9-HpCDF	ND	0.82	
					1,2,3,4,6,7,8,9-OCDF	ND	2.11	
					Total TCDD	ND	0.765	
					Total PeCDD	ND	0.925	
					Total HxCDD	ND	0.756	
					Total HpCDD	ND	0.792	
					Total TCDF	ND	1.11	
					Total PeCDF	ND	0.671	
					Total HxCDF	ND	0.649	
					Total HpCDF	ND	0.896	
					2,3,7,8-TCDD TEQ (ITEF)	0		

TABLE 2

**GROUND WATER AND SURFACE WATER ANALYTICAL DATA
CHLORINATED DIOBENZODIOXINS AND DIBENZOFURANS**

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Sample Location	Sample Top Depth (feet)	Sample Matrix	Sample Date	Sample ID	Chemical	Result (pg/L)	MDL (pg/L)	EMPC (pg/L)
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Notes

Samples analyzed by EPA Method 8290.

EMPC = Estimated Maximum Possible Concentration

EPA = United States Environmental Protection Agency

J or j = estimated value (the analyte was positively identified, but the associated numerical result is an estimate [analytical laboratory estimate = upper-case "J," data validation qualifier = lower-case "j"])

MDL = Method Detection Limit

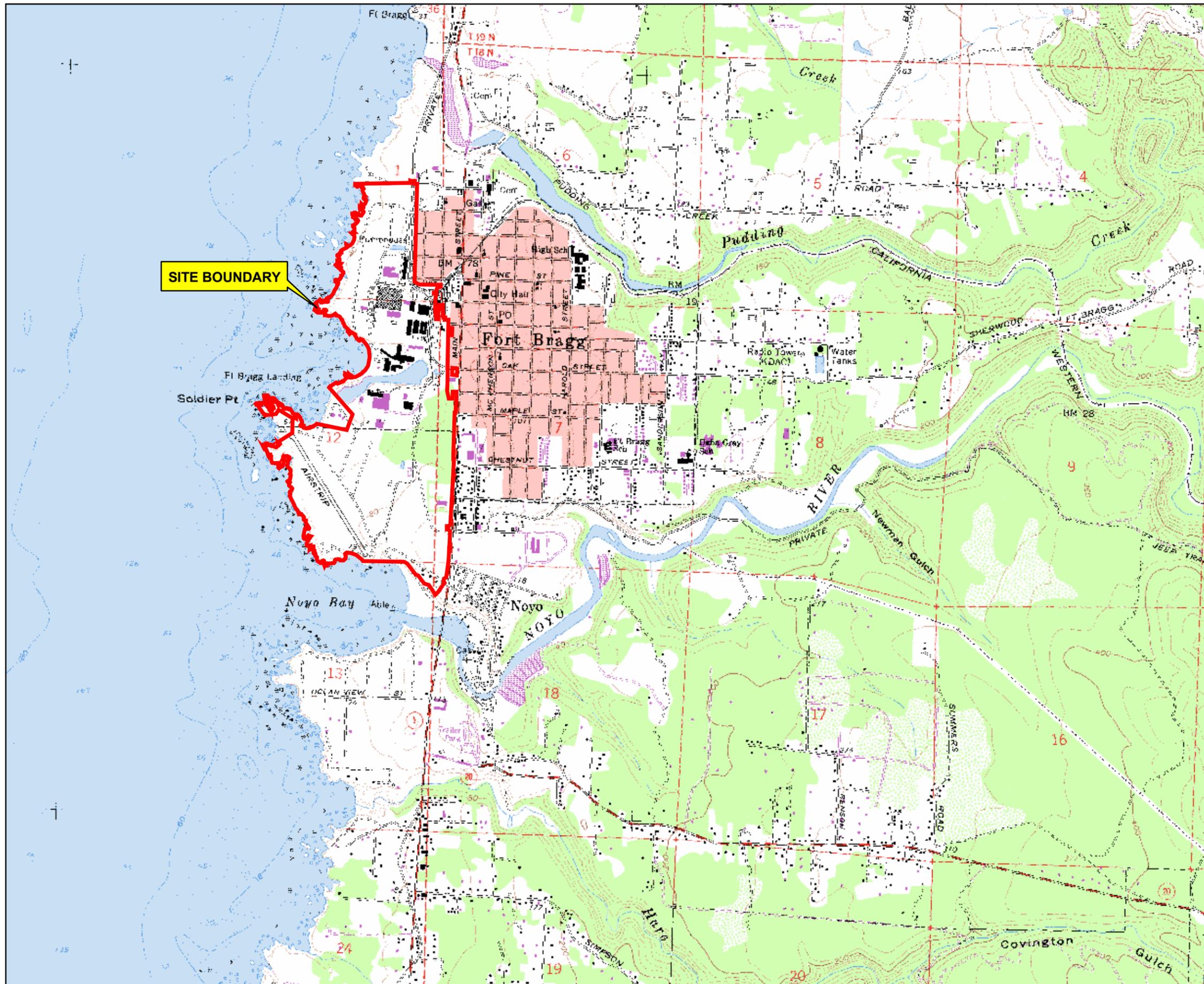
ND = concentration as reported by analytical laboratory is less than the MDL or EMPC

pg/L = picogram(s) per liter

u = not detected

uj = not detected; associated numerical value is an estimate of the MDL

2,3,7,8-TCDD TEQ (ITEF) = Toxicity Equivalency Quotient value as reported by the laboratory, using 1997 International Toxic Equivalent Factors (ITEF)



Note:

Base map from USGS Fort Bragg, California
7.5 Minute Topographic Quadrangle

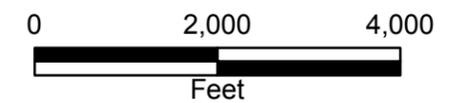
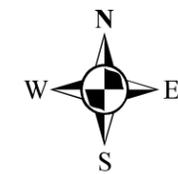


FIGURE 1
SITE LOCATION MAP

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Acton •
Mickelson •
Environmental, Inc.

Consulting Scientists, Engineers, and Geologists

5175 Hillside Circle #100, El Dorado Hills, California 95762 (916) 939-7550

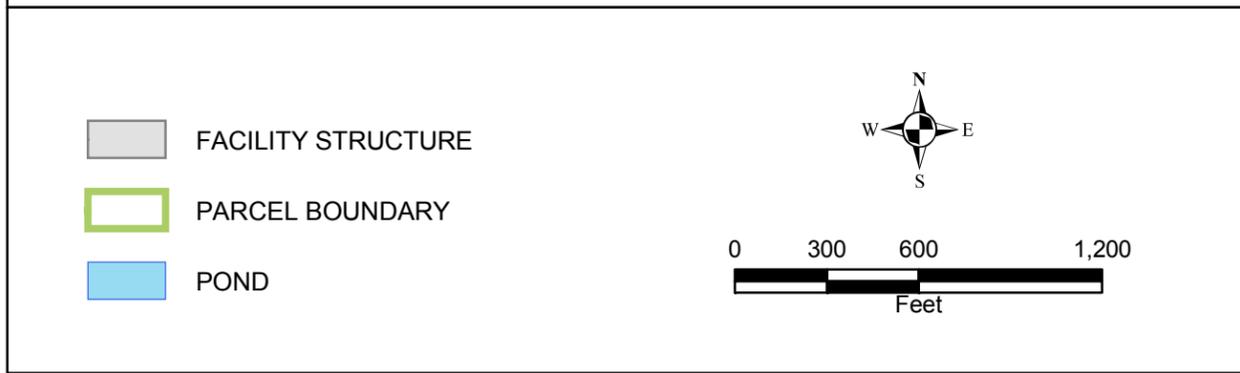
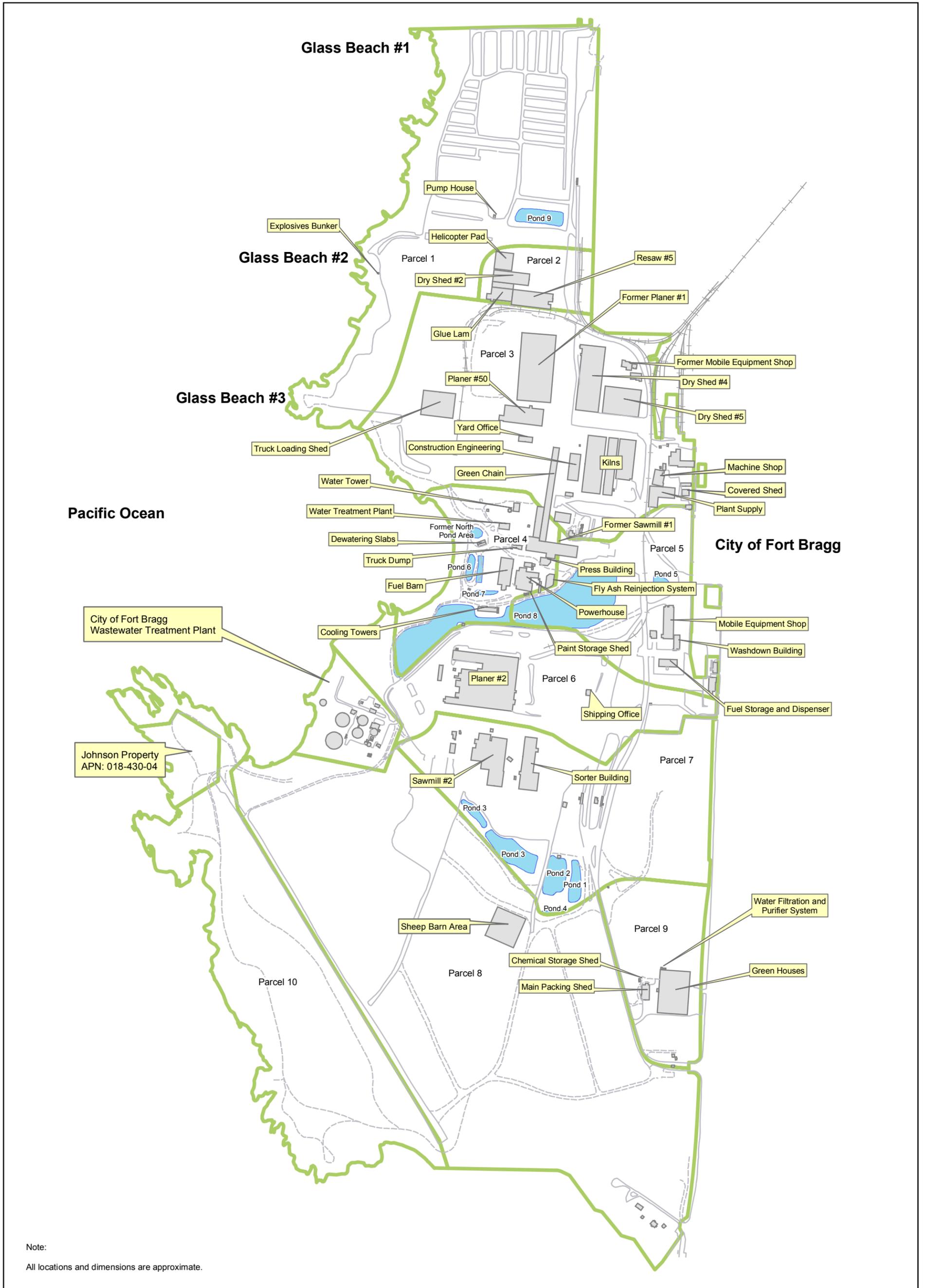
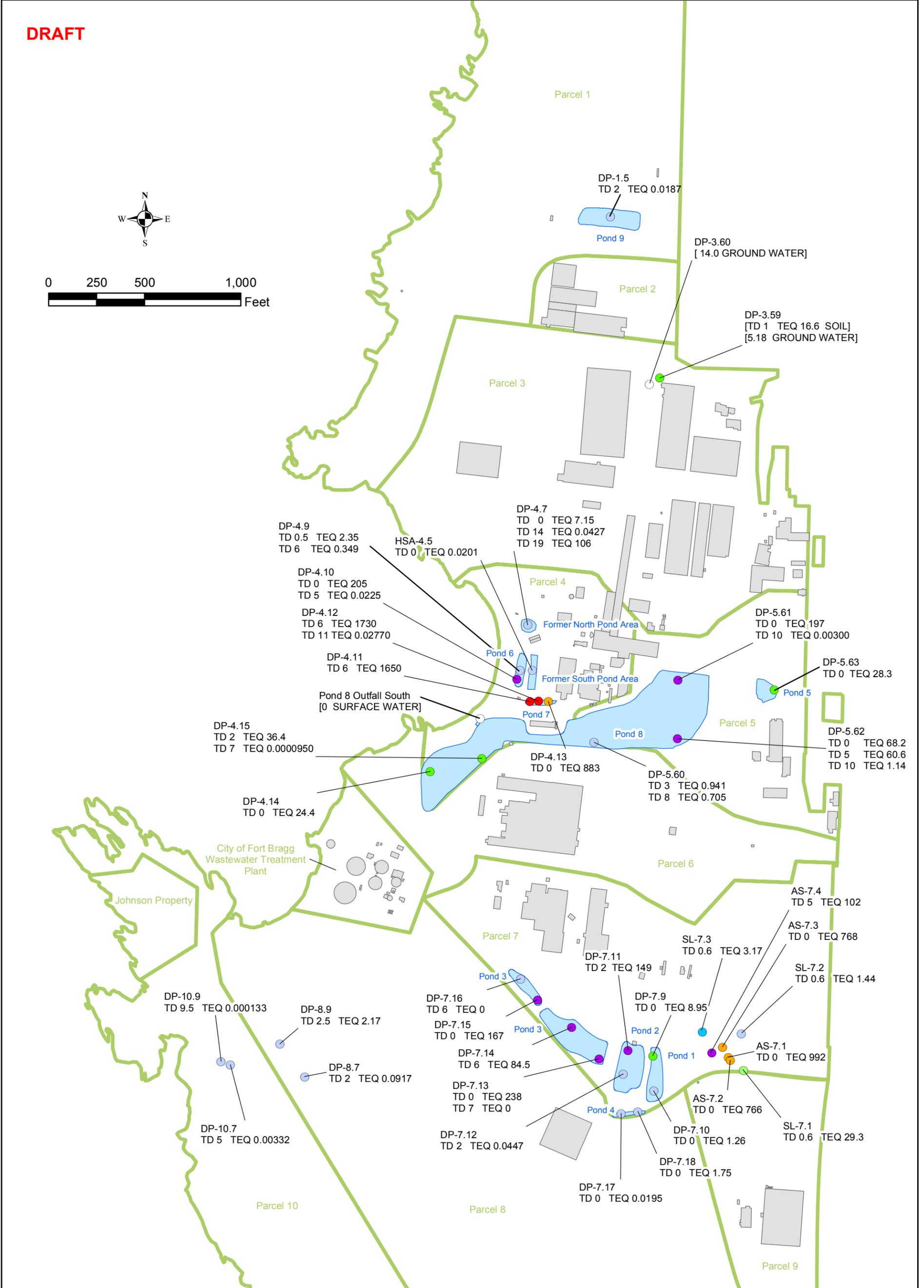


FIGURE 2
SITE MAP WITH BUILDING LOCATIONS

Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California

Acton • Mickelson • Environmental, Inc.
Consulting Scientists, Engineers, and Geologists
5175 Hillsdale Circle #100, El Dorado Hills, California 95762 (916) 939-7550

DRAFT



SAMPLING LOCATIONS WITH MAXIMUM CONCENTRATIONS AS TEQ VALUES

- 0 - 3.1
- 3.2 - 8.8
- 8.9 - 44
- 45 - 238
- 239 - 991
- 992 - 1,730

- FACILITY STRUCTURE
- PARCEL BOUNDARY
- POND

Notes:

Concentrations for dioxins and furans are reported as Toxicity Equivalency Quotient (TEQ) values.

Soil units: picograms per gram (pg/g)
Water units: picograms per liter (pg/L)

Concentration data are from unfiltered grab ground water samples. The presence of turbidity may result in reported concentrations that are greater than actual dissolved phase concentrations.

Includes results for samples collected through May 2006.

TD = Top depth of sample (feet).
Depths are relative to ground surface or pond bottom.

**FIGURE 3
CONCENTRATIONS OF DIBENZODIOXINS AND
DIBENZOFURANS IN SOIL, SEDIMENT, FLY ASH,
AND GROUND WATER**

**Georgia-Pacific California Wood Products Manufacturing Facility
90 West Redwood Avenue, Fort Bragg, California**

**Acton •
Mickelson •
Environmental, Inc.**

Consulting Scientists, Engineers, and Geologists

5175 Hillside Circle #100, El Dorado Hills, California 95762 (916) 939-7550

APPENDIX A

Agency Correspondence



**California Regional Water Quality Control Board
North Coast Region**

William R. Massey, Chairman



Linda S. Adams
Agency Secretary

www.waterboards.ca.gov/northcoast
5550 Skylane Boulevard, Suite A, Santa Rosa, California 95403
Phone: (877) 721-9203 (toll free) • Office: (707) 576-2220 • FAX: (707) 523-0135

Arnold
Schwarzenegger
Governor

June 13, 2006

Ms. Julie B. Raming
Georgia-Pacific Corporation
P.O. Box 105605
Atlanta, GA 30348-5605

Dear Ms. Raming:

Subject: **California Water Code Section 13267(b) ORDER**

File: Georgia-Pacific Fort Bragg Sawmill, 90 West Redwood Avenue, Fort Bragg
Case No. 1NMC462

On June 6, 2006, Craig Hunt and Cody Walker of my staff met with you and your representatives, as well as representatives of the City of Fort Bragg, to discuss the ongoing investigation work at the Georgia-Pacific Fort Bragg sawmill site. Preliminary data from chlorinated dibenzo-dioxin/furan analyses of samples from an ash stockpile and pond sediments were discussed. During that meeting, you had agreed to submit a report of that sampling and analysis, as well as to the submittal of a report of other ongoing investigation work. Accordingly, enclosed is a Water Code Section 13267(b) Order that requires the submittal of these reports. This Order also requires the submittal of a Public Participation Plan and a report and workplan regarding offsite ash disposal.

In the June 6 meeting, which included the City of Fort Bragg City Manager Ms. Linda Ruffing, it was agreed to hold a community workshop regarding the ongoing investigation after the report of chlorinated dibenzo-dioxin/furan investigation work is submitted. My staff will be working with you and Ms. Ruffing on preparing that meeting.

If you have any questions concerning the Order, please contact Craig Hunt of my staff at (707) 570-3767.

Sincerely,

/ORIGINAL SIGNED BY/

Catherine E. Kuhlman
Executive Officer

061306_CSH_GPFB_0606_13267Ordercoverletter.doc

California Environmental Protection Agency

Recycled Paper

Certified Return Receipt Requested

Enclosure: Water Code Section 13267(b) Order

cc: Mr. Michael Acton, Acton Mickelson Environmental, Inc., 5175 Hillsdale Circle,
Suite 100, El Dorado Hills, CA 95762
Ms. Kay M. Johnson, Tetra Tech, Inc., 3746 Mt. Diablo Boulevard, Suite 300,
Lafayette, CA 94549
Mr. Doug Heitmeyer, Georgia-Pacific Corporation, 90 West Redwood Avenue,
Fort Bragg, CA 95437
Ms. Linda Ruffing, City Manager, City of Fort Bragg, 416 N. Franklin Street,
Fort Bragg, CA 95437
Mendocino County Environmental Health Department, 501 Low Gap Road,
Room 1326, Ukiah, CA 95482
Mr. Dave Goble, Public Works Department, 416 N. Franklin Street,
Fort Bragg, CA 95437
Ms. Loie Rosenkrantz, 17201 Franklin Road, Fort Bragg, CA 95437
Ms. Barbara Cook, Department of Toxic Substances Control, 700 Heinz Avenue,
Suite 100, Berkeley, CA 94710
Mr. David L. Berry, Department of Toxic Substances Control, P.O. Box 806,
Sacramento, CA 95812
Ms. Ashle Crocker, Remy, Thomas, Moose, and Manley, 455 Capitol Mall,
Suite 210, Sacramento, CA 95814
Mr. Glenn S. Young, Fugro West, Inc., 1000 Broadway, Suite 200,
Oakland, CA 94607
Mr. Mark Stelljes, SLR International Corp, 117 Burgundy Court,
Martinez, CA 94553
Mr. James and Ms. Barbara McGuire, 22501 Bald Hill Road,
Fort Bragg, CA 95437
E-mail cc list

California Regional Water Quality Control Board
North Coast Region

ORDER REQUIRING TECHNICAL INFORMATION
PURSUANT TO WATER CODE SECTION 13267(b)

FOR

GEORGIA-PACIFIC CORPORATION
FORT BRAGG SAWMILL

90 W. Redwood Avenue
FORT BRAGG, CALIFORNIA

Mendocino County

The California Regional Water Quality Control Board, North Coast Region (hereinafter Regional Water Board) finds that:

1. The Georgia-Pacific Corporation (Discharger) owned and operated a lumber mill in Fort Bragg, California, west of California Highway 1, at 90 West Redwood Avenue, hereinafter the "Site" (Attachment A).
2. In 2006, samples were taken by representatives of the Discharger from an ash stockpile located at the Site and from pond sediments at the site.
3. Preliminary results provided to Regional Water Board staff of the analysis of these samples reveal concentrations of chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans, hereinafter "dioxins". A final report of this sampling task and related analytical results has not been completed.
4. Soil and water investigations at the Site have been ongoing under the June 8, 2005 Acton Mickelson Environmental, Inc. *Work Plan for Additional Site Assessment* and the subsequent modifications to that plan, as concurred with by Regional Water Board staff in a letter dated September 19, 2005.
5. In a meeting on June 6, 2006, Regional Water Board staff met with representatives of the Discharger and of the City of Fort Bragg. During this meeting the preliminary results and the submittal of a report of the sampling and analyses for dioxins and for the other investigation work were discussed.
6. Groundwater at this site is shallow and surface water from this site discharges directly to the ocean.
7. Ash generated at the Site has previously been used as a soil amendment, under Waste Discharge Requirements Order No. 96-96 issued by the Regional Water Board. The soil amendment site was located on land owned by James I. and Barbara McGuire within Sections 4 & 5 of T18N, R17W, and Sections 32 &

33 of T19N, R17W (MDB&M) on 249 acres of pasture land, hereinafter the McGuire Ranch Site, drained by Virgin Creek. The record indicates that sampling of the soil amendment site for dioxins has not been routinely performed as part of a monitoring program.

8. The following sections of the Porter-Cologne Water Quality Control Act authorize the Regional Water Board Executive Officer to make the following requirements for persons suspected of discharging waste that could affect the quality of waters within this region:
 - Section 13267(a) - *“A regional board, in establishing or reviewing any water quality control plan or waste discharge requirements, or in connection with any action relating to any plan or requirement or authorized by this division, may investigate the quality of any waters of the state within its region.”*
 - Section 13267(b) - *“In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or proposes to discharge waste within its region...that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires.”*
 - Section 13267(c) - *“In conducting an investigation pursuant to subdivision (a), the regional board may inspect the facilities of any person to ascertain whether the purposes of this division are being met and waste discharge requirements are being complied with. The inspection shall be made with the consent of the owner or possessor of the facilities or, if the consent is withheld, with a warrant duly issued pursuant to the procedure set forth in Title 13 (commencing with Section 1822.50) of Part 3 of the Code of Civil Procedure. However, in the event of an emergency affecting the public health or safety, an inspection may be performed without consent or the issuance of a warrant.”*
9. All of the technical reports required by this Order are necessary to ensure that any threat to water quality created by the discharges described above are properly abated and controlled.
10. In light of the preliminary data indicating a potential threat to water quality, the burden, including costs, of the reports required by this Order bear a reasonable relationship to the need for the reports and the benefits to obtained therefrom.
11. This enforcement action is being taken for the protection of the environment and, therefore, is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21000 et seq.) in accordance with Section 15321, Chapter 3, Title 14, California Code of Regulations.
12. Failure to comply with the terms of this Order may result in enforcement under the California Water Code. Any person failing to provide technical reports

containing information required by this Order by the required date(s) or falsifying any information in the technical reports is, pursuant to Water Code Section 13268, guilty of a misdemeanor and may be subject to administrative civil liabilities of up to one thousand dollars (\$1,000.00) for each day in which the violation occurs. Any person failing to clean up or abate threatened or actual discharges as required by this Order is, pursuant to Water Code Section 13350(e), subject to administrative civil liabilities of up to five thousand dollars (\$5,000.00) per day or ten dollars (\$10) per gallon of waste discharged. Any person discharging waste into navigable waters of the United States without waste discharge requirements is, pursuant to Water Code Section 13385(c), subject to administrative civil liabilities of up to ten thousand dollars (\$10,000.00) per day in which the discharge occurs plus ten dollars (\$10.00) per gallon of waste discharged, and may also be subject to criminal prosecution pursuant to Water Code Section 13387.

13. Any person affected by this action of the Regional Water Board may petition the State Water Resources Control Board (State Water Board) to review the action in accordance with California Water Code Section 13320 and Title 23, California Code of Regulations, Section 2050. The petition must be received by the State Water Board within 30 days of the date of this Order. Copies of the law and regulations applicable to filing petitions will be provided upon request. In addition to filing a petition with the State Board, any person affected by this Order may request the Regional Water Board to reconsider this Order. To be timely, any such request must be made within 30 days of the date of this Order. Note that even if reconsideration by the Regional Water Board is sought, filing a petition with the State Water Board within the 30-day period is necessary to preserve the petitioner's legal rights. If you choose to request reconsideration of this Order or file a petition with the State Water Board, be advised that you must comply with the Order while your request for reconsideration and/or petition is being considered.

THEREFORE, IT IS HEREBY ORDERED that, pursuant to California Water Code Section 13267(b) the Discharger shall:

1. By July 17, 2006, the Discharger shall submit to the Executive Officer a complete report of the dioxin sampling and analyses. This report shall also include a summary of any and all information available concerning the locations of disposal or reuse of ash generated at the Site.
2. By August 14, 2006, the Discharger shall submit to the Executive Officer a report of all investigation work performed through the April 2006 sampling of pond sediments, under the June 8, 2005 Acton Mickelson Environmental, Inc. *Work Plan for Additional Site Assessment* and the subsequent modifications to that plan.

3. By August 14, 2006, the Discharger shall submit to the Executive Officer a Public Participation Plan for ongoing public participation for this site.
4. By August 14, 2006, the Discharger shall submit a workplan for investigation at the McGuire Ranch Site to evaluate potential dioxin impacts.
5. All of the above required information shall be submitted under penalty of perjury.

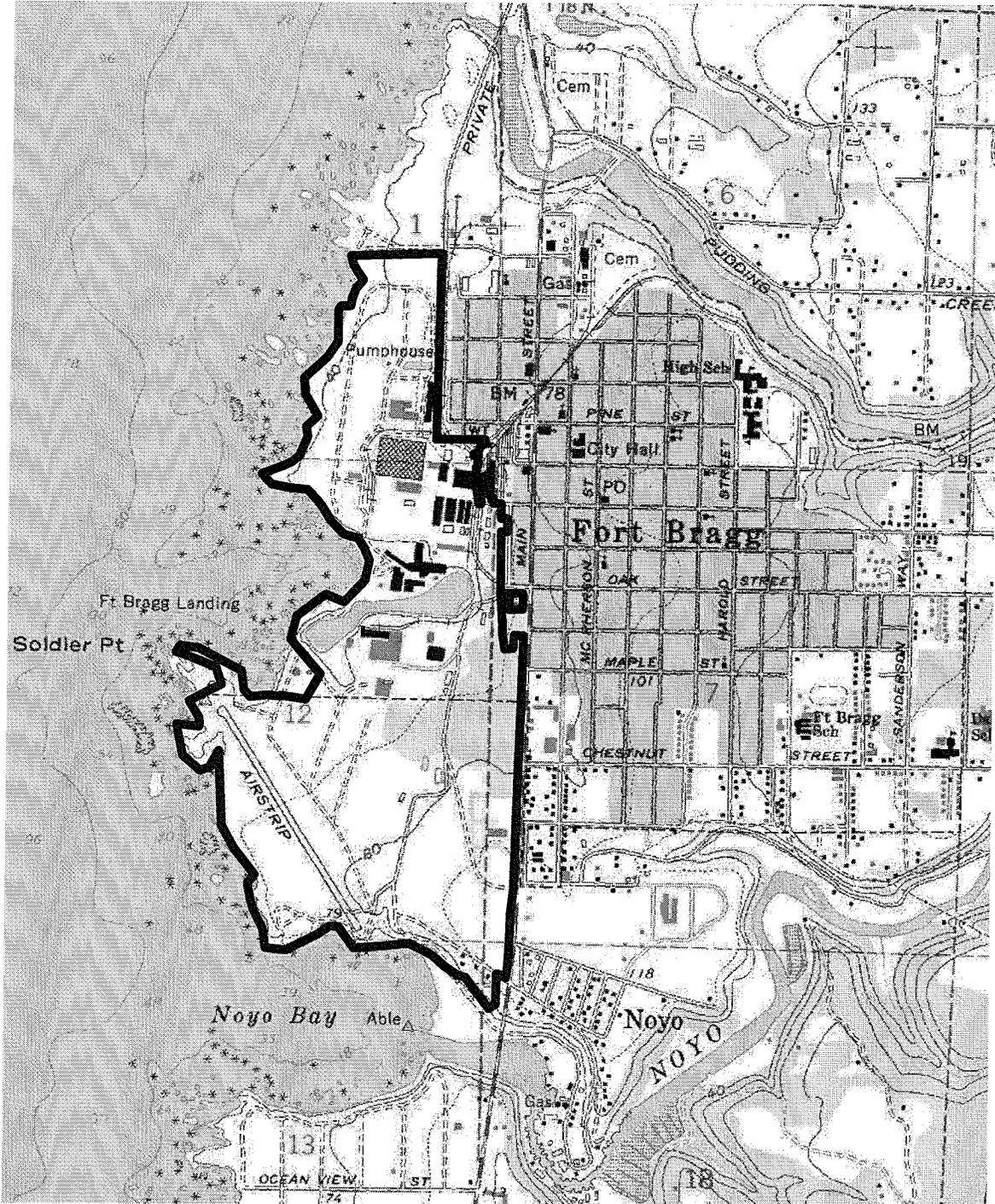
/ORIGINAL SIGNED BY/

Ordered by _____

Catherine E. Kuhlman
Executive Officer

June 13, 2006

ATTACHMENT A



Site Location Map (base map is from a USGS Fort Bragg, California, 7.5 Minute Topographic Quadrangle). The Site is roughly outlined in black.

APPENDIX B

Soil Boring Permits

16017.08/6

COPY

RECEIVED
MAR 3 2006



Environmental Health, Hazardous Materials

501 Low Gap Road, Rm 1326, Ukiah, CA, 95482 707-463-4466

MONITORING WELL APPLICATION

(For Official Use Only)

PERMIT

To Construct, Destroy, Repair, or Alter: Monitoring Wells, Cathodic Wells, Remediation Wells or Borings

Date Paid: 8/10/05

FEES PAID UNDER

Fee Paid \$ 10,103.00

Number: PERMIT # 23-5233

Payment # UPI0599

Application is hereby made to the Mendocino County Division of Environmental Health for a permit to perform the work as indicated below at the following site location:

Business Name: FORMER G.P. WOOD PRODUCTS MANUFACTURING FACILITY Phone: 707.961.3353

Site Address: 90 WEST REDWOOD AVE City: FORT BRAGG

Property Owner Address: 133 PEACHTREE STREET, NE

City: ATLANTA State: GA Zip: 30303

Work Information:

Indicate below the total number of wells already existing on the site:

Domestic Water Wells 3 Monitoring Wells 40

Type of Work Proposed: Construction Destruction
Repair Alteration/Conversion

Indicate below the total number of proposed wells or borings for each type listed:

Monitoring Wells Cathodic Wells Borings/hydropunches 21

Consultant and Contractor Information:

Consulting Firm: ALTON MICKELSON ENVIRONMENTAL INC

Address: 5175 HILLSDALE CIR, STE 100 City: EL DORADO Zip: 95762

Contact Name: TOM CARROLL Phone #: 916 939 7521

Driller/Contractor: PRECISION

C-57 License #: 636397 Phone #: 510.237.4575

Address: 1001 ESEX AVE City: RICHMOND Zip: 94801

Permit Terms and Conditions provide that the contractor will:

- Secure the authorization of the property owner.
- Submit written authorization(s) from the off-site property owner(s) for all off-site work.
- Complete the Site Plot Sketch according to the instructions on the back of this application.
- Consult with the Inspector for an available inspection date prior to scheduling field activities.
- Schedule field work to commence after a permit has been issued.
- Place seals by "free fall" (without a tremie pipe) only in dry intervals of less than 30 feet EGS.
- Construct surface seal/cover to prevent physical damage, unauthorized access, & contamination.
- Submit a State of California Well Completion Report/Log or an "As Constructed" Well Log, or a Destruction Log of the Well Boring within 15 days of completion as a requirement for final approval (Mendocino County Code Section 16.04.090). (Final approval will not be given without the log(s) or sketch.)

Permit Agreement:

I hereby agree to construct, destroy, repair or alter all wells or borings on this permit application in accordance with the "Permit Terms And Conditions" as stated above and in compliance with the Mendocino County Well Ordinance (County Code Chapter 16.04) and the California Well Standards Bulletin 74-81 & 74-90 as they are amended from time to time.

I understand that this permit expires one year from the date of issuance (Mendocino County Code Section 16.04.090).

For Known Contaminated Sites: I understand that the North Coast Regional Water Quality Control Board requires an approved Work Plan prior to the start of any field work under this permit. [Please call (707) 576-2220 for questions regarding work plan approval.]

For Sites within the Coastal Zone: I understand that the Department of Planning and Building requires a Coastal Zone Permit prior to the start of any field work under this permit, and that they may require additional permit fees.

C-57 Contractor: Wet signatures required; faxes will not be accepted.

MIKE CASEY
(Print Name)

[Signature]
(Signature)

Date: MARCH 3, 2006

Coastal Zone Approval:

(Signature)

Date: _____

Permit Approval:

This application is deemed as approved and issued when signed and dated by a Mendocino County Health Officer in the space provided on the lines below:

Issued by: [Signature] Date: 3-8-06
(Health Officer's Signature)

Work completed satisfactorily:

Final Approval by: _____ Date: _____
(Health Officer's Signature)

Date Boring and Well Logs were received: _____

Distribution: Original to EH Copy to well driller
Copy to Consultant Copy to Water Quality Control

RECEIVED

MAR 07 2006

MENDO. ENV. HEALTH

new Driller only



MONITORING WELL APPLICATION

To Construct, Destroy, Repair, or Alter: Monitoring Wells, Cathodic Wells, Remediation Wells or Borings

Application is hereby made to the Mendocino County Division of Environmental Health for a permit to perform the work as indicated below at the following site location:

Business Name: Former Georgia-Pacific Sawmill Phone #: 707-961-3353
Site Address: * City: Fort Bragg
Property Owner Name: Georgia-Pacific Phone #:
Property Owner Address: 90 West Redwood Avenue
City: Ft. Bragg State: CA Zip: 95437

Work Information:

Indicate below the total number of wells already existing on the site:

Domestic Water Wells 5 Monitoring Wells 31

Type of Work Proposed: Construction X Destruction
Repair Alteration/Conversion

Indicate below the total number of proposed wells or borings for each type listed:

Monitoring Wells 4 Cathodic Wells Borings/hydropunches
Remediation Wells (includes injection/extraction/sparge/etc.)

Consultant and Contractor Information:

Consulting Firm: Acton Mickelson Environmental, Inc.
Address: 5175 Hillside Circle, Suite 100 City: El Dorado Hills Zip: 95762

Contact Name: Jeff Heglie Phone #: 541-488-9255

Driller/Contractor: Donald W. Douglas

C-57 License #: 802-334 Phone #: 530-668-2424

Address: 220 N. East St City: Woodland Zip: 95776

Permit Terms and Conditions provide that the contractor will:

- Secure the authorization of the property owner.
Submit written authorization(s) from the off-site property owner(s) for all off-site work.
Complete the Site Plot Sketch according to the instructions on the back of this application.
Consult with the inspector for an available inspection date prior to scheduling field activities.
Schedule field work to commence after a permit has been issued.
Place seals by "free fall" (without a tremie pipe) only in dry intervals of less than 30 feet BGS.
Construct surface seal/cover to prevent physical damage, unauthorized access, & contamination.
Submit a State of California Well Completion Report/Log or an "As Constructed" Well Log, or a Destruction Log of the Soil Boring within 15 days of completion as a requirement for final approval [Mendocino County Code Section 16.04.060 (c)]. (Final approval will not be given without the log(s) or sketch.)

(For Official Use Only)

Date Paid 11/10/05

Fee Paid \$ 1420.00

Payment # UP10947

PERMIT

Number 23-5233

Received By: GB

Permit Agreement:

I hereby agree to construct, destroy, repair or alter all wells or borings on this permit application in accordance with the "Permit Terms And Conditions" as stated above and in compliance with the Mendocino County Well Ordinance (County Code Chapter 16.04) and the California Well Standards Bulletin 74-81 & 74-90 as they are amended from time to time.

I understand that this permit expires one year from the date of issuance (Mendocino County Code Section 16.04.090).

For Known Contaminated Sites: I understand that the North Coast Regional Water Quality Control Board requires an approved Work Plan prior to the start of any field work under this permit. [Please call (707) 576-2220 for questions regarding work plan approval.]

C-57 Contractor: (Wet Signature Required; Faxed Copies will not be accepted.)

Don Wingewich (Print Name) Don Wingewich (Signature) Date: 11/4/05

Permit Approval:

This application is deemed as approved and issued when signed and dated by a Mendocino County Health Officer in the space provided on the lines below:

Issued by: [Signature] Date: 11-10-05
(Health Officer's Signature)

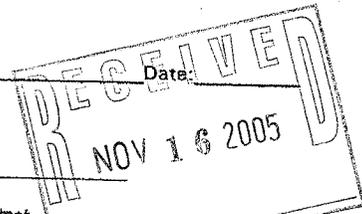
Work completed satisfactorily:

Final Approval by: [Signature] Date:
(Health Officer's Signature)

Date Boring and Well Logs were received:

Distribution: Original to EH
Copy to well driller

Copy to Consultant
Copy to North Coast Regional Water Control Board
UC/CP/MSW/Well Application form-8-2002 vwp; September 25, 2002



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Environmental Health, Hazardous Materials

MAY 11 2006

501 Low Gap Road, Rm 1326, Ukiah, CA, 95482 707-463-4466

MENDO. ENV. HEALTH

MONITORING WELL APPLICATION

(For Official Use Only)

To Construct, Destroy, Repair, or Alter: Monitoring Wells, Cathodic Wells, Remediation Wells or Borings

PERMIT

Application is hereby made to the Mendocino County Division of Environmental Health for a permit to perform the work as indicated below at the following site location:

Date Paid: 5/11/06

Fee Paid \$ 883.00

Payment # UP12587

Number: 23-5233
Rec'd By: GB

Business Name: ERNER G-P WOOD PRODUCTS MANUFACTURE FACILITY Phone: (707) 961-3353
Site Address: 90 WEST REDWOOD AVE City: FORT BRAGG
Property Owner Address: 133 BEACH TREE STREET, NE
City: ATLANTA State: GA Zip: 30303

Work Information:

Indicate below the total number of wells already existing on the site:

Domestic Water Wells 3 Monitoring Wells 4

Type of Work Proposed: Construction X Destruction
Repair Alteration/Conversion

Indicate below the total number of proposed wells or borings for each type listed:

Monitoring Wells Cathodic Wells Borings/hydropunches 3

Consultant and Contractor Information:

Consulting Firm: ALTON MICKELSON ENVIRONMENTAL, INC.

Address: 5175 HILLSDALE CIR. #100 City: EL DORADO HILLS Zip: 95762

Contact Name: TOM CARROLL Phone #: (916) 939-7571

Driller/Contractor: Precision Sampling

C-57 License #: 636387 Phone #: (510) 237-4575

Address: 1081 ESSEX AVENUE City: RICHMOND Zip: 94801

Permit Terms and Conditions provide that the contractor will:

- Secure the authorization of the property owner.
Submit written authorization(s) from the off-site property owner(s) for all off-site work.
Complete the Site Plot Sketch according to the instructions on the back of this application.
Consult with the inspector for an available inspection date prior to scheduling field activities.
Schedule field work to commence after a permit has been issued.
Place seals by "free fall" (without a tremie pipe) only in dry intervals of less than 30 feet BGS.
Construct surface seal/cover to prevent physical damage, unauthorized access, & contamination.
Submit a State of California Well Completion Report/Log or an "As Constructed" Well Log, or a Destruction Log of the Soil Boring within 15 days of completion as a requirement for final approval [Mendocino County Code Section 16.04.060 (c)]. (Final approval will not be given without the log(s) or sketch.)

Permit Agreement:

I hereby agree to construct, destroy, repair or alter all wells or borings on this permit application in accordance with the "Permit Terms And Conditions" as stated above and in compliance with the Mendocino County Well Ordinance (County Code Chapter 16.04) and the California Well Standards Bulletin 74-81 & 74-90 as they are amended from time to time.

I understand that this permit expires one year from the date of issuance (Mendocino County Code Section 16.04.090).

For Known Contaminated Sites: I understand that the North Coast Regional Water Quality Control Board requires an approved Work Plan prior to the start of any field work under this permit. [Please call (707) 576-2220 for questions regarding work plan approval.]

For Sites within the Coastal Zone: I understand that the Department of Planning and Building requires a Coastal Zone Permit prior to the start of any field work under this permit, and that they may require additional permit fees.

C-57 Contractor: Wet signatures required; faxes will not be accepted.

MIKE CASEY (Print Name)

(Signature)

Date: MAY 3, 2006

Coastal Zone Approval:

(Signature)

Date:

Permit Approval:

This application is deemed as approved and issued when signed and dated by a Mendocino County Health Officer in the space provided on the lines below:

Issued by: (Health Officer's Signature) Date: 5-11-06

Work completed satisfactorily:

Final Approval by: (Health Officer's Signature) Date:

Date Boring and Well Logs were received:

Distribution: Original to EH Copy to well driller Copy to Consultant Copy to Water Quality Control

APPENDIX C

Sampling Procedures

APPENDIX C SAMPLING AND ANALYSIS PLAN

PREPARED FOR

Georgia-Pacific Corporation
California Wood Products Manufacturing Facility
90 West Redwood Avenue
Fort Bragg, California

PREPARED BY

Acton • Mickelson • Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762
(916) 939-7550

AME Project Number 16017.08

JULY 14, 2006

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- A-1 Boring Log Key
- A-2 Unified Soil Classification System Chart

This Sampling and Analysis Plan (SAP) describes procedures to be followed by Acton • Mickelson • Environmental, Inc. (AME), during collection of subsurface soil, sediment, concrete, surface water, and ground water samples, as well as the analytical methodology to be used by the analytical laboratory. It provides established guidelines that ensure samples represent actual field conditions and are labeled, preserved, and transported properly to retain sample integrity. Sampling will be conducted in general accordance with procedures outlined in guidance documents from the American Society of Testing and Materials (ASTM), United States Environmental Protection Agency (EPA), and California Environmental Protection Agency (Cal-EPA).

1. SUBSURFACE EXPLORATION SOIL SAMPLING PROCEDURES

Soil borings and sampling will be performed under the direction of an appropriately registered AME professional. Soil borings will be advanced using:

- Truck-mounted, hollow-stem auger drill rig
- Truck-mounted, track-mounted, or barge-mounted direct push rig
- Hand auger

Investigation of fill areas will be accomplished through backhoe excavation or use of large-diameter auger equipment.

1.1 Soil Sample Collection from Hollow-Stem Auger Borings

Soil samples will be collected at 5-foot vertical intervals and in general accordance with ASTM D1586-84 (reapproved 1992), modified to allow the use of a 2-inch-diameter split-barrel sampler. Using this procedure, three 2-inch-diameter, 6-inch-length, stainless-steel tubes are placed in a California-type split-barrel sampler, which is driven into the soil by a 140-pound weight falling 30 inches. After driving the sampler an initial distance of 6 inches (seating drive), the number of blows required to drive the sampler an additional 12 inches is known as standard penetration resistance, or the “N” value. The “N” value is used as an empirical measure of the relative density of cohesionless soil and the consistency of cohesive soil. Upon recovery of the split-barrel sampler, the stainless-steel tubes containing the soil will be removed.

Soil samples intended for volatile organic compound (VOC) testing will be obtained in accordance with U.S. EPA Method 5035. Soil samples will be obtained with a discrete soil-sampling device (EnCore™ sampler or SoilCore™ sampler or equivalent). The soil samples need to be received by the laboratory or frozen within 48 hours of sampling.

The soil samples for VOC testing will be taken from the bottom of the three stainless-steel tubes. The tube will then be sealed at the ends with Teflon® tape and plastic end-caps. The percent recovery of the sample will be recorded. The sample will be labeled with an identification number, time, date, location, and requested laboratory analysis, then placed in a plastic bag and stored at approximately 4 degrees Celsius (°C) in an ice chest for transport to the laboratory. Sample custody procedures outlined in Section 7 will be followed for each sample collection.

Soil in the second stainless-steel tube will be extracted upon recovery, placed in a plastic bag, sealed, and placed out of direct sunlight for later screening for organic vapors using a photoionization detector (PID) or flame ionization detector (FID).

Soil will be examined for composition, color, and moisture content, and a complete log of soil conditions will be recorded on a soil boring log (Appendix A-1) using the Unified Soil Classification System (USCS, Appendix A-2).

The split-barrel sampler will be cleaned to prevent cross-contamination for each sampling interval using procedures described in Section 4. Soil borings advanced with hollow-stem augers will generate drill cuttings. The soil generated from the soil borings will be stored in 55-gallon drums and labeled with the corresponding boring number, date, and address of the facility. Alternatively, the soil generated from the soil borings may be placed on and covered with plastic and stored onsite until characterized for disposal. After drilling, borings not intended for monitoring well construction will be backfilled with neat cement.

1.2 Sample Collection from Direct Push Borings

A continuous core will be collected by pushing a Macrocore sampler containing a 4-foot long acrylic or polyvinyl chloride (PVC) tube. Soil samples selected for laboratory analysis will be obtained by saw cutting a 6-inch length from the soil-filled acrylic tube and sealing the ends of the removed segment with Teflon[®] tape and plastic end-caps.

Soil samples intended for VOC testing will be obtained from the tube in accordance with EPA Method 5035 (see Section 1.1). Soil from a portion of the tube will be extracted, placed in a plastic bag, sealed, and placed out of direct sunlight for later screening for organic vapors using a PID or FID. The soil will be examined for composition, color, and moisture content, and a log of soil conditions recorded on a soil boring log (Appendix A-1) using the USCS (Appendix A-2).

The sample will be labeled with an identification number, time, date, location, and requested laboratory analysis, then placed in a plastic bag and stored at approximately 4°C in an ice chest for transport to the laboratory. Sample custody procedures outlined in Section 7 will be followed.

1.3 Fill Area Excavations

Investigation of fill areas will be accomplished using either large-diameter auger equipment or by backhoe excavation. Use of a large-diameter auger is preferred over standard 4-inch diameter solid-stem or 8-inch diameter hollow-stem auger equipment because the larger diameter augers typically provide a more representative sample of heterogeneous fill materials. Advantages of backhoe use are that setup time is reduced and a larger area can be explored by excavating a wider or longer trench. One disadvantage of the backhoe is the limited vertical reach of the bucket usually restricted to approximately 15 feet for a tire-mounted unit.

Soil samples will be collected from the large-diameter borings or excavations directly from the auger flights or the backhoe bucket. Samples will be handled as described in Section 1.1. Equipment will be decontaminated as described in Section 4. Large-diameter borings and test excavations will be backfilled with soil cuttings from the respective excavations.

1.4 Sample Collection from Remedial Excavations

Soil samples will be collected from Interim Remedial Measure (IRM) excavations to evaluate residual chemical-compound concentrations. The samples will be collected directly from the excavator bucket to prevent physical hazards from personnel entering the excavations. Soil removed from the IRM excavation bottom or sidewalls will be placed in a stainless-steel tube in such a way that no headspace exists. The ends of the tube will be covered with Teflon sheets followed by plastic end caps. The samples will be labeled with an identification number, time, date, location, and requested laboratory analysis, then placed in individual plastic bags and stored at approximately 4°C in an ice chest for transport to the laboratory.

Soil generated during IRM excavations will be either loaded directly into trucks for transport to a disposal facility or placed on and covered with plastic sheeting pending disposal characterization.

1.5 Concrete Sample Collection

Concrete samples will be collected from building foundations during their excavation and removal. The foundations will be broken into small portions and stockpiled onsite pending waste disposal characterization. Samples of the concrete will be collected for laboratory analysis from the stockpiles. Fragments of the concrete will be collected and double-bagged in sealed plastic bags to prevent any spillage of material during transport.

Laboratory test samples will be sent to a materials testing (geotechnical) laboratory and crushed in preparation for chemical analysis. In accordance with analytical laboratory recommendations, the crushed samples will be stored at approximately 4°C in an ice chest during laboratory shipment. Each sample will be labeled with an identification number, time, date, location, and requested laboratory analysis. Sample chain-of-custody documentation will be maintained from collection to laboratory delivery.

Following disposal characterization, non-hazardous concrete waste will be crushed and used onsite or loaded (uncrushed) onto trucks for transport to Norcal Rock in Willits, California, an offsite recycling/disposal facility. Concrete containing chemical concentrations deemed hazardous will be transported to a Class I landfill for disposal.

1.6 Ground Monitoring Well Construction

The ground water monitoring wells will be installed using 8-inch diameter hollow-stem augers. The boring will be drilled 6 feet past first encountered ground water. After the boring has reached total depth, 2-inch diameter schedule 40 PVC casing will be installed. Ten feet of screen will be installed within the well, and 6 feet of screen will extend below first encountered ground water. The well screen slot size will be 0.020 inch. Before installation of the screen with attached end cap, a 6-inch layer of Number 2/12 sand pack or equivalent will be added to the boring to act as a cushion for the casing.

After the casing is placed within the boring, the sand pack will be added to approximately 2 feet above the uppermost casing slot. One foot of bentonite will be added to the top of the sand pack and hydrated with clean water. The remainder of the boring annulus will be filled with neat Portland cement. At the ground surface, the well will be protected with a flush mounted traffic rated Christie box or locking riser as appropriate. If placed within a Christie box, the top of the well casing will have a locking cap.

1.7 Sediment Sampling

1.7.1 Pond Areas

The RWQCB – North Coast Region requested that the full depth of sediments and fill beneath the ponds be assessed. The borings will be performed at approximately equally spaced intervals along the axes of the ponds.

The various ponds contain several inches to several feet of water. The condition of the ponds will be assessed to determine whether foot or boat access is required for sediment sample collection. If conditions allow, a hand corer sampler with liner tubes will be used to collect sediment samples. This sampler can be used while standing in a dry or shallow pond or while floating in a boat in a deeper pond. If possible, continuous core will be collected from the top of the sediments to native material, bedrock, or refusal. Samples will be retained for testing and handled in general accordance with Section 1.2.

Sample locations will be recorded using global positioning system (GPS) equipment. Depth of overlying water, if any, will be measured with a graduated, weighted tape. Depth of sediment will be initially measured using graduated metal or PVC probes pushed by hand.

1.7.2 Storm Drain

Sediment samples can be obtained by pressing a clean stainless steel sampling tube directly into the media to be sampled. If necessary, a slide hammer can be used to imbed the sample tube. Samples will be retained for laboratory testing in accordance with Section 1.2.

1.8 Geophysical Surveying

Site geophysical surveys will be conducted using several methods to identify anomalies that may represent buried objects and debris, fill areas, and areas of higher soil electrical conductivity (possibly indicative of impact from chemicals of potential concern). Land-survey area and geophysical-survey grid boundaries will be established, and land will be surveyed to sub-meter accuracy using GPS equipment, as well as referencing the state plane coordinate system and 1983 North American Datum. All geophysical survey data will be digitally field-recorded, and survey results will be interpolated into a regular grid and reported in a geo-referenced digital format.

The geophysical surveys will utilize ground conductivity and time domain electromagnetic metal (TDEM) detector surveys. The ground conductivity survey will use the Geonics EM-31 terrain conductivity meter, which uses electromagnetic induction to measure ground conductivity. The

Geonics EM-61 will be used for the TDEM survey to detect buried metallic objects. Both instruments will be operated in automatic data acquisition mode and will field-record data in a data logger. Data will be recorded along grid lines at approximately 10-foot spacing to cover the areas of concern. Survey data locations will be obtained simultaneously using a hand-held GPS unit.

2. MEASUREMENTS OF WATER LEVEL AND APPARENT THICKNESS OF PHASE-SEPARATED HYDROCARBONS, ALSO KNOWN AS LIQUID-PHASE HYDROCARBONS

Phase-separated hydrocarbons (PSH) have been reported in Parcel 5 monitoring well MW-5.1. Measurements of water levels and apparent thickness of PSH will be conducted in general accordance with ASTM D4750 (reapproved 1993). The static water level and apparent PSH thickness in each well will be measured with an electronic interface probe prior to purging or sampling.

The interface probe includes a wire that is marked at 0.01-foot intervals and will be lowered slowly into the well until PSH or water is encountered (the interface probe emits one of two tones depending on whether it encounters PSH or water). When either PSH or water is encountered, depth will be recorded by checking the 0.01-foot-interval markings on the interface probe wire against a predetermined reference point on the well casing (permanent reference points, surveyed to a common reference point, will be marked on the well casings, and all well casing riser elevations will be known to within 0.01 foot).

If the first substance encountered is PSH, the probe will continue to be lowered after depth-recording until the tone corresponding to water is emitted, at which point depth will again be recorded as described above. The difference between the first and second recorded depths is apparent PSH thickness. The interface probe will be rinsed with a cleaning solution and deionized water between measurements in different wells.

Sampling of PSH for analysis will not be performed. Further, no attempt will be made to sample or analyze ground water from monitoring wells where the presence of a measurable PSH layer is indicated by interface probe readings.

For sites where PSH is not present, static water level will be measured using either a conductance probe level meter or an electronic interface probe. Like the interface probe, the conductance probe level meter emits a steady tone upon encountering any conductive fluid (e.g., water) and includes a wire marked at 0.01-foot intervals. The procedure for obtaining static water levels with the conductance probe level meter is basically the same (when PSH is not encountered) as for an interface probe.

3. GROUND WATER SAMPLING

Ground water sampling will be conducted in general accordance with ASTM D4448 (reapproved 2001). When ground water monitoring wells are accessed, the wellhead atmosphere will be monitored by FID or a lower explosive limit (LEL) meter. If monitoring indicates greater than 5,000 parts per million by volume (ppmv) with the FID or greater than 10 percent with the LEL meter, dry ice will be placed in the wellhead to displace the potentially explosive vapors, and sampling will not proceed until concentrations are reduced below the action levels.

3.1 Well Evacuation

If traditional well purging methods are used, prior to collection of a ground water sample, stagnant water will be removed from the well casing and surrounding gravel pack by bailing, pumping, or using a vacuum truck. At least three casing volumes of water will be removed from each well to be sampled (unless low-flow purging is performed for measurement of dissolved oxygen, as described in Section 3.2). The volume of water in the casing will be determined using the known elevation of the water surface, the well-bottom elevation (as measured at well installation), and the well diameter.

If the well is bailed or pumped during purging, samples will be collected and field analyzed for pH, temperature, turbidity, and specific conductance. The well will be considered stabilized when repeated readings of the following parameters are within the ranges indicated as follows:

- Specific conductance ±10 percent of the reading range
- pH ±0.1 pH unit
- Temperature ±0.5° C
- Turbidity less than 5 nephelometric turbidity units

After stabilization, and after at least three casing volumes are evacuated, a sample will be collected for analysis. The field container used for well-stabilization measurements, and the pH, temperature, and conductivity probes will be rinsed between wells with deionized water.

All purge water will be containerized and documented for disposal as described in Section 6. If the containers are stored onsite, a label specifying the date of purging, source, and the known or suspected nature of the contents will be affixed to each container.

3.2 Low-Flow Well Evacuation and Sampling

In general, ground water sampling will be accomplished using the low-flow purging method in general accordance with ASTM D6771 (2002). Dedicated polyethylene sample tubing will be used at each location, and samples will be obtained with a peristaltic pump. The pump intake (i.e. the end of the drop tubing) shall be set mid-way between the water table and the bottom of the screen for shallow wells. The initial purging rate will not exceed 0.1 gallons per minute (gpm) or 0.5 liters per minute (lpm). The depth to water in the well will be measured and recorded on the field form along with other field parameters. The flow rate will be adjusted to minimize drawdown, with a 0.33 feet maximum drawdown as is target. The ground water purge flow is directed into a flow-through cell

for measurement of field parameters. Measurements of field parameters will be obtained at the following minimum intervals (assumes flow-through cell net volume of approximately 0.25 gal):

Purge Rate (gpm)	Purge Rate (lpm)	Measurement Interval (minutes)
0.06	0.25	4
0.12	0.5	2
0.25	1	1

Purging will continue until three consecutive readings fall within the ranges specified below:

Parameter	Criterion
pH	+/- 0.1 pH unit
Specific Conductance	+/- 10 percent
Turbidity	Minimize. Greater of +/- 10 percent or +/- 1 NTU
Dissolved Oxygen	+/- 0.1 mg/L
Temperature	+/- 0.5 degrees C.

To obtain samples, the pumping rate will be first reduced to 0.06 gpm or 0.25 lpm. Samples will then be collected ahead of flow through cell by filling the containers directly from the dedicated tubing. Samples will be collected in the following order: 1) volatiles, 2) amber glass, 3) other, and 4) field filtration to polyethylene containers for metals.

3.3 In-Situ Measurement of Dissolved Oxygen

Measurement of dissolved oxygen in ground water may be performed in-situ with a dedicated field instrument. The instrument probe is lowered for placement within the screened interval of the monitoring well, and typically remains undisturbed throughout a test. Measurements are performed according to instrument-specific instructions.

3.4 Grab Ground Water Sampling

Grab ground water samples may be obtained with an exposed-screen sampling apparatus in general accordance with ASTM D6001 (reapproved 2002). At the target interval, an exposed-screen sampler will be opened to the formation from which a grab ground water sample will be collected with a peristaltic pump. The sample is then transferred to the laboratory-supplied containers. Dedicated polyethylene sample tubing will be used at each location.

3.5 Surface Water Sampling

3.5.1 Pond Areas

A short bailer will be used to collect surface water samples. The water samples should be taken from an area where bottom sediments have not been disturbed. The samples will be handled as described in Section 3.6.

3.5.2 Storm Drain

If there is adequate water volume, water samples will be obtained from the storm drain by immersing sampling containers directly into the water using caution to avoid disturbing bottom sediments. If there is inadequate water depth to immerse the containers, then water will be transferred into them from a clean sampling cup. The samples will be handled in accordance with Section 3.6.

3.6 Sample Collection, Preservation, and Handling

A new polyethylene disposable bailer will be used to collect ground water samples after standard well evacuation or for grab sampling. The bailer is attached to a new disposable rope and lowered slowly into the water to avoid agitation of the collected sample. In low-flow evacuation, samples are collected from a sampling port in the inlet line to the flow-through chamber with the well evacuation pump operating. Containers for VOC analysis will be filled so that no air space remains in the vial after sealing.

All sample containers will be prewashed and prepared in accordance with laboratory quality assurance/quality control protocols. Only sample containers appropriate for the intended analyses will be used.

After being collected, samples will be sealed in zip press bags, placed into coolers with ice packs that maintain a temperature of approximately 4°C, and therein transported to the analytical laboratory.

4. DECONTAMINATION PROCEDURES

All equipment that comes into contact with potentially contaminated soil, drilling fluid, air, or water will be decontaminated before each use in general accordance with ASTM D5088. Decontamination will consist of steam-cleaning, a high-pressure, hot-water rinse, or trisodium phosphate (TSP) or Alconox[®]/Liquinox[®] wash and fresh water rinse, as appropriate.

Drilling and sampling equipment will be decontaminated as follows:

1. Drill rig augers, drill rods, drill bits, and backhoe buckets will be steam-cleaned prior to use and between borings or excavations. Visible soil, grease, and other impurities will be removed.
2. Soil sampling equipment will be steam-cleaned prior to use and between each boring. Prior to individual sample collection, any sampling device will also be cleaned in a TSP or Alconox[®]/Liquinox[®] solution and rinsed twice in clean water. Any visible soil residue will be removed.
3. It is anticipated that disposable equipment will be used to collect water samples. If disposable equipment is not used, water sampling equipment will be decontaminated using methods described in Item 2 for soil sampling equipment.

4. Water sampling containers will be prepared in accordance with the respective analytical laboratory's quality assurance/quality control procedures.
5. Soil sampling tubes will be steam-cleaned or washed in TSP or Alconox[®]/Liquinox[®] solution and rinsed with clean water.
6. Field monitoring equipment (pH, conductivity, or temperature probes) will be rinsed with clean water prior to use and between samples.

5. FIELD MEASUREMENTS

Field data will be collected during various sampling and monitoring activities; this section describes routine procedures to be followed by personnel performing field measurements so that field measurements are consistent and reproducible when performed by various individuals.

5.1 Buried Utility Locations

All work associated with soil borings will follow the pre-drilling protocol specified in the Site Health and Safety Plan.

5.2 Lithologic Logging

A log of soil conditions encountered during drilling and sample collection (Appendix A-1) will be maintained using the USCS (Appendix A-2) by an AME geologist. All boring logs will be reviewed by a California registered geologist. The collected soil samples will be examined, and the following information will be recorded:

- Boring location
- Sample interval and depth
- Blow counts
- Color
- Soil type
- Moisture content (qualitative)
- Depth at which ground water (if present) is first encountered
- Field screening results obtained using a portable PID or FID

5.3 Conductivity, Temperature, pH, Turbidity, and Dissolved Oxygen

Specific conductance, temperature, pH, turbidity, and dissolved oxygen measurements will be made when a water sample is collected. For standard well evacuation, a representative water sample will be placed in a transfer container used solely for field-parameter determinations. For low-flow evacuation, measuring instruments will be placed in the flow-through sampling cell.

Combination instruments capable of measuring any or all of the parameters may be used. All instruments will be calibrated in accordance with manufacturer methods, and:

- Conductance: Values for conductivity standards used in calibration will be recorded daily in a field notebook
- Temperature: May be checked using standard thermometers
- pH: Values for pH buffers used in calibration will be recorded daily in a field notebook
- Turbidity: Values for turbidity standards used in calibration will be recorded daily in a field notebook
- Dissolved oxygen: Meter will be zeroed with a solution of 50 grams sodium sulfite in one liter of distilled water

All probes will be cleaned and rinsed with fresh water prior to any measurements, in accordance with Section 4.

5.4 In-Situ Dissolved Oxygen Meter

A dissolved oxygen meter with a probe designed for stagnant-water measurement will be used. The meter will be calibrated twice per day in accordance with manufacturer instructions: once before the first use and once after the last use.

5.5 PID, FID, and LEL Meter Calibration

Field personnel will calibrate the PID, FID, and LEL meters for vapor measurements at least twice per day: once each before the first and last use. The PID, FID and LEL meters are zeroed on ambient air. In addition:

- FID and LEL: Meters will be calibrated to a methane-in-air standard obtained from a calibration gas cylinder
 - The primary FID meter calibration point will be 200 ppmv methane (low range)
 - The FID may be alternately calibrated (on the high range setting) to 5,000 ppmv methane, using 10 percent LEL (0.5 percent by volume) calibration gas
 - The primary LEL meter calibration point will be 50 percent of LEL (2.5 percent by volume or 25,000 ppmv methane)
- The PID meter will be calibrated to an isobutylene-in-air standard of 100 ppmv obtained from a calibration cylinder

6. DISPOSAL PROCEDURES

During the above operations, soil and fluids produced or used during the installation and sampling of borings and wells known or suspected to contain potentially hazardous materials will be retained onsite in appropriate containers (i.e., drums, bins, tanks) until chemical testing has been completed

to determine the proper means of offsite disposal. Handling and disposal of substances known or suspected to contain potentially hazardous materials will comply with the applicable regulations of the Cal-EPA, the California Department of Water Resources, and any other applicable regulations.

Waste ground water will be containerized onsite (initially being pumped into drums or temporary holding tanks) pending chemical testing for disposal characterization, after which it will be handled for disposal as described above.

Residual substances generated during cleaning procedures that are known or suspected to contain potentially hazardous materials will be placed in appropriate containers until chemical testing has been completed to determine the appropriate means for offsite disposal.

Non-hazardous soil will be transported to either Waste Management, Inc., Redwood Landfill in Novato, California, or Potrero Hills Landfill in Suisun City, California. Hazardous soil will be transported to Waste Management, Inc., Kettleman Hills Landfill in Kettleman City, California. Both non-hazardous and hazardous liquids will be transported to Evergreen Environmental Services in Newark, California for recycling.

7. SAMPLE CUSTODY

This section describes standard operating procedures for sample custody (i.e., field custody [Section 7.1] and laboratory custody [Section 7.2]) and chain-of-custody documentation. Sample-custody procedures will be followed through sample collection, transfer, analysis, and disposal, so that:

- Sample integrity is maintained throughout collection, transportation, and pre-analysis storage
- Post-analysis sample-material disposal is appropriate

7.1 Field-Custody Procedures

Sample quantities, types, and locations will be determined before actual fieldwork commences. The field sampler is personally responsible for sample care and custody from collection until transfer. The number of people handling samples should be minimized.

7.1.1 Field Documentation

Each sample will be labeled and sealed immediately after collection. Sample-identification documents will be prepared so identification and chain-of-custody records can be maintained and sample disposition controlled. Forms will be completed with waterproof ink. Sample-identification documents include:

- Sample labels
- Field notebook
- Chain-of-custody forms

7.1.2 Sample Labels

Preprinted sample labels will be used to provide sample identification. Clean label-protection tape will be used to protect labels from water and solvents, where necessary. Each label includes:

- Name of collector
- Date and time of collection
- Place of collection
- AME project number
- Sample number
- Preservative (if any)

7.1.3 Field Notebook

Field-survey, measurement, and/or sampling information will be recorded in a bound notebook or on the daily field log. Notebook entries should include:

- Name and title of author
- Date and time of entry
- Physical/environmental conditions during field activity
- Location of sampling or measurement activity
- Name(s) and title(s) of field crew
- Type of sampled or measured media (e.g., soil, ground water, concrete)
- Sample collection or measurement method(s)
- Number and volume of sample(s) taken
- Sample containers and container batch numbers
- Description of sampling point(s)
- Description of measuring reference points
- Date and time of measurement collection
- Sample identification number(s)
- Sample preservative (if any)
- Sample distribution (e.g., laboratory)
- Field observations/comments
- Field measurements data (e.g., pH)

7.1.4 Chain-of-Custody Record

A chain-of-custody record will be completed and accompany every sample and sample shipment to analytical laboratories in order to establish necessary documentation to trace sample possession from the time of collection. Each chain-of-custody record will include:

- Sample or station number or sample I.D.
- Signature of collector, sampler, or recorder
- Date and time of collection
- Place of collection
- Sample type

- Signatures of persons involved in the chain of possession
- Inclusive dates of possession

The laboratory portion of the form should be completed by laboratory personnel and will include:

- Name of person receiving the sample
- Laboratory sample number
- Date and time of sample receipt
- Analyses requested
- Sample condition and temperature

7.1.5 Sample Transfer and Shipment

Samples will always be accompanied by a chain-of-custody record, including during shipment. When transferring samples, the individuals relinquishing and receiving the samples will sign, date, and note the time on the chain-of-custody record. Samples will be packaged for shipment and dispatched to the identified laboratory for analysis, and the method of shipment, courier name(s), and other pertinent information will be entered into the chain-of-custody record.

7.2 Laboratory-Custody Procedures

Upon sample arrival at the laboratory, a designated sample custodian will accept custody of the shipped samples, compare sample labels with the chain-of-custody record to verify consistency, and review method-of-delivery and sample-condition information on the chain-of-custody record. The custodian will then enter the appropriate data into the laboratory sample-tracking system using the sample number on the sample label or assigning a unique laboratory number to each sample, and transfer the sample(s) to the proper analyst(s) or store them in the appropriate secure area. In the event of sample leakage or other evidence of sample damage, the laboratory will contact the project quality assurance officer for a decision regarding sample disposition.

Laboratory personnel are responsible for sample care and custody from sample receipt until sample exhaustion or disposal and, for the intended analyses, handle samples in accordance with *EPA SW-846, Test Methods for Evaluating Solid Waste Physical/Chemical Methods, Third Edition*. All data sheets, chromatographs, and laboratory records will be filed as part of the permanent documentation.

7.3 Corrections to Documentation

Original data recorded in field notebooks, chain-of-custody records, and other forms should be written in ink. These documents should not be altered, destroyed, or discarded, even if they are illegible or contain inaccuracies that require a replacement document.

If an error is made or found on a document, the individual will make a correction by crossing a single line through the error, entering the correct information, and initialing and dating the change. The erroneous information will be obliterated. Any subsequent error(s) discovered on a document will also be corrected, initialed, and dated.

7.4 Sample Storage and Disposal

Samples and extracts should be retained by the analytical laboratory for 30 days after receipt. Unless notified by the program manager, excess or unused samples should be disposed by the laboratory in an appropriate manner consistent with applicable government regulations.

8. WELL DESTRUCTION

Prior to well destruction all necessary permits will be obtained from the Mendocino County Department of Public Health Division of Environmental Health (MCEH) by the well driller. Wells will be destroyed in accordance with applicable sections of the Department of Water Resources (DWR) Bulletins 74-81 and 74-90. The well driller will provide at least 24 hours notice to MCEH prior to performing the well destruction. The wells will be destroyed by overdrilling the annulus to the total depth of the well with hollow-stem auger drilling equipment. The width of the annulus will be exceeded by at least 1 inch. Cuttings and well construction materials will be stored onsite in labeled 55-gallon drums and disposed in accordance with jurisdictional requirements. After overdrilling the well, tremie pipe will be inserted to the bottom of the boring. As the augers are removed, neat Portland cement will be added to fill the boring through the tremie pipe. After the augers are removed and the cement has settled, the borings will be topped off to the ground surface with neat cement. After well destruction, a Well Completion Report will be filled out and a copy sent to the DWR.

9. SAMPLE ANALYSES

Implementation of the Work Plan at the site will result in the collection of concrete, soil, sediment, and ground water samples, which will be analyzed according to methods discussed in the following sections. Analytical method reporting limits and holding times are described in the Quality Assurance Plan.

9.1 Soil, Sediment, and Concrete Samples

Soil and sediment samples may be collected in stainless-steel, acrylic, or PVC tubes during soil boring activities (Section 1). Soil, sediment, and concrete samples will be analyzed by one or more of the following test methods:

- Total petroleum hydrocarbons as gasoline (EPA Method 8015 Modified)
- Total petroleum hydrocarbons as diesel and motor oil with silica gel cleanup (EPA Method 8015 Modified)
- VOCs (EPA Method 8260)
- VOCs (EPA Method 8260 with sample collection by EPA Method 5035)
- Semi-VOCs (SVOCs) (EPA Method 8270)

- Polynuclear aromatic hydrocarbons (EPA Method 8270 or 8310)
- Polychlorinated biphenyls (EPA Method 8082)
- Dioxins and furans (EPA Method 8290)
- Site-specific pesticides/herbicides (various EPA and in-house methods)
- California Title 22 Metals (EPA 6010/7400)
- Hexavalent chromium (EPA Method 7196)
- Cyanide (EPA Method 9010B or 335.4)
- Didecyldimethylammonium chloride (North Coast Laboratories in-house method)
- Nitrate, as nitrogen (EPA Method 300.0)
- Nitroglycerine (EPA Method 8332)
- Phenol, tetrachlorophenol, and pentachlorophenol (EPA Method 8270)
- Pentachlorophenol (water only, EPA Method 515.1)
- Nitrilotriacetic acid (special method)

In addition to the chemical analyses, selected soil samples may be analyzed for physical parameters by the following ASTM methods or equivalent:

- Dry bulk density (ASTM D2937)
- Moisture content (ASTM D2937)
- Total porosity (ASTM D854 and D2937)
- Total organic carbon (ASTM D2974)

9.2 Surface and Ground Water Samples

Surface and ground water samples will be collected from ponds, storm-drains, monitoring wells, and soil borings and analyzed by one or more of the test methods listed in Section 9.1.

10. REMARKS

This plan represents our professional opinions, which are based on client-supplied and currently available information and have been arrived at in accordance with currently accepted hydrogeologic and engineering practices at this time and location. Other than this, no warranty is implied or intended. Any reliance on the information contained herein by third parties is at such parties' sole risk.

APPENDIX C-1

Boring Log Key

BORING LOG KEY

LOCATION INFORMATION

ACTON • MICKELSON • ENVIRONMENTAL, INC.

5049 Robert J. Mathews Parkway #200
El Dorado Hills, CA 95762

BORING DESIGNATION

LOG OF BORING

AME PROJECT NUMBER

FACILITY NAME AND ADDRESS

Area No./ Description: _____

Page 1 of 1

Drilling Company: _____

Drilled By: _____

Drilling Method: _____

Boring Diameter: _____

Sampling Method: _____

Location (East/North): _____

Ground Surface Elevation: _____

Water Depth (Date, Time): _____

Casing Elevation: _____

Total Depth (feet): _____

Weather: _____

Drilling Started: _____

Drilling Finished: _____

Logged By: _____

Checked By: _____

Source: _____ PID/FID: _____

DEPTH (feet)	SAMPLE INTERVAL	SAMPLE ID (% FILLED)	BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS		COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID/FID READINGS (ppm)
			BLOWS/6 IN. (N)	IN. RECD			GRAPHIC	WELL GRAPHIC		
0										
0-1										
1-2										
2-3										
3-4										
4-5										
5										
5-6										
6-7										
7-8										
8-9										
9-10										
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20-21										
21-22										
22-23										
23-24										
24-25										
25										
25-26										
26-27										
27-28										
28-29										
29-30										
30										

REVISOR: LOG 2100203.GPJ, ACTON.GBT 8/20/99

INCHES RECOVERED FROM SAMPLER

GROUND WATER ELEVATION

GRAPHIC LITHOLOGY PER USCS CHART

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) CODE

GRAPHIC OF WELL CONSTRUCTION (IF APPLICABLE)

PID/FID READINGS FROM SOIL SAMPLES, IN PARTS PER MILLION (ppm)

DRILLING INFORMATION

DATE AND TIME OF DRILLING

HAND AUGER

ROCK CORE

STANDARD PENETRATION TEST (SPT)

CALIFORNIA MODIFIED SPLIT SPOON SAMPLER

PUNCHLINE CORE

SAMPLE PORTION RETAINED FOR ANALYSIS

INDICATES A CHANGE IN SOIL PROPERTIES

INDICATES AN INTERVAL WITHIN A SOIL CLASS

COMPLETE SAMPLE IDENTIFIER, AND PERCENT OF SAMPLE TUBE FILLED WITH SOIL (OPTIONAL)

BLOW COUNT FROM SPT OR CAL. MOD. SAMPLER AND N-VALUE (SUM OF LAST TWO 6" INTERVALS)

INCHES RECOVERED FROM SAMPLER

GROUND WATER ELEVATION

GRAPHIC LITHOLOGY PER USCS CHART

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) CODE

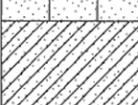
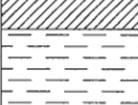
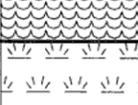
GRAPHIC OF WELL CONSTRUCTION (IF APPLICABLE)

PID/FID READINGS FROM SOIL SAMPLES, IN PARTS PER MILLION (ppm)

APPENDIX C-2

Unified Soil Classification System Chart

UNIFIED SOIL CLASSIFICATION SYSTEM CHART

MAJOR DIVISION			SYMBOL		GROUP NAME ^A AND TYPICAL DESCRIPTION
			GRAPH	LETTER	
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL RETAINED ON NO. 200 SIEVE	GRAVEL AND GRAVELLY SOILS (LESS THAN 5% FINES)	CLEAN GRAVELS		GW^B	WELL-GRADED GRAVEL^C: GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP^B	POORLY-GRADED GRAVEL^C: GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (MORE THAN 15% FINES)		GM^B	SILTY GRAVEL^C: GRAVEL - SAND - SILT MIXTURES
				GC^B	CLAYEY GRAVEL^C: GRAVEL - SAND - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LESS THAN 5% FINES)		SW	WELL-GRADED SAND^D: GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SAND^D: GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (MORE THAN 15% FINES)		SM	SILTY SAND^D: SAND - SILT MIXTURES
				SC	CLAYEY SAND^D: SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL PASSES THE NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50			ML	SILT^E: INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	LEAN CLAY^E: INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC CLAY/ORGANIC SILT^E: ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT 50 OR GREATER			MH	ELASTIC SILT^E: INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	FAT CLAY^E: INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAY/ORGANIC SILT^E: ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT: HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTES: A) IF FIELD SAMPLE CONTAINS COBBLES OR BOULDERS, ADD "WITH COBBLES" AND/OR "WITH BOULDERS" TO GROUP NAME
 B) DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS WITH 5-15% FINES. ADD "WITH SILT" OR "WITH CLAY" TO GROUP NAME
 C) IF SOIL CONTAINS 15% OR MORE SAND, ADD "WITH SAND" TO GROUP NAME
 D) IF SOIL CONTAINS 15% OR MORE GRAVEL, ADD "WITH GRAVEL" TO GROUP NAME
 E) IF SOIL CONTAINS 30% OR MORE PLUS NO. 200, ADD "SANDY" OR "GRAVELLY" TO GROUP NAME. IF 15-25%, ADD "WITH SAND" OR "WITH GRAVEL", WHICHEVER IS PREDOMINANT.

APPENDIX D

Boring Logs

**ACTON •
MICKELSON •
ENVIRONMENTAL, INC.**

LOG OF BORING

Facility: G-P Fort Bragg

HSA-4.5

Address: 90 W. Redwood Ave.
Fort Bragg, CA

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

AME Project No.: 16017.08

Area No./ Description: Parcel 4, West of Fuel Barn (Filled Pond), Central Part

Page 1 of 2

Drilling Company: RSI
Drilled By: Don Jenkins
Drilling Method: Hollow Stem
Boring Diameter: 7"
Sampling Method: California Modified Split Spoon Sampler

Location (East/North): 6,050,023/2,292,039 (not surveyed)
Ground Surface Elevation:
Water Depth (Date, Time): 4.00' BGS (1/23/06 1255)
Casing Elevation:
Total Depth (feet): 31.5' BGS
Weather: clear/warm

Drilling Started: 1/23/06 1240
Drilling Finished: 1/24/06 1137

Logged By: J.D. Matthey, R.G., C.E.G
Checked By:

Source: Original field notes

PID/FID: PID

DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION	GRAPHIC LOG	SOIL CLASS	COMMENTS	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECVD					
0					FILL - SILTY GRAVEL (GM), black (2.5Y N2/), Dense, Moist, 70% fine to coarse gravel, >1 cm clast, 30% fine to medium sand. Trace Wood Fragments at 1%.		GM	1250	0
5		HSA-4.5-2	4-15-37 (52)	14	Wet.			Slight Artesian Water Flow	
		HSA-4.5-6	11-23-38 (61)	14	Trace Concrete Blocks.			1255	0
10		HSA-4.5-11	5-6-7 (13)	12	Medium Dense, Wood Fragments to 10%.			1310	0
15		HSA-4.5-16	8-12-20 (32)	16	FILL - SILTY SAND (SM), dark gray (2.5Y N4/), Dense, Wet, Wood Fragments to 10%.		SM	1102	0
20		HSA-4.5-21	10-12-14 (26)	14	SILTY SAND (SM), light gray (2.5Y 7/1), Medium Dense, Wet, Wood Fragments at 1%, Well Sorted, Very Fine to Fine Grained, Subangular to Subrounded, Probable Beach/Aeolian Deposits 80% fine sand, 20% fines.		SM	1110	0
25		HSA-4.5-26	13-16-21 (37)	14				1118	0
30									

LOG_OF_BORING_FT_BRAGG.GPJ ACTON.GDT 7/10/06

**ACTON •
MICKELSON •
ENVIRONMENTAL, INC.**

LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

HSA-4.5

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Parcel 4, West of Fuel Barn (Filled Pond), Central Part

Page 2 of 2

DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION	GRAPHIC LOG	SOIL CLASS	COMMENTS	
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D				DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
30		HSA-4.5-31	10-11-16 (27)	14	↓ Organic Material at 1%.			1135 Boring Terminated Total Depth =31.5'	0

ACTON • MICKELSON • ENVIRONMENTAL, INC.

LOG OF BORING

Facility: G-P Fort Bragg

Address: 90 W. Redwood Ave.
Fort Bragg, CA

DP-1.5

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

AME Project No.: 16017.08

Area No./ Description: Parcel 1, Pond 9

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,431/2,294,415 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 63.58' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 23' BGS
	Weather: Clear/Cool

Drilling Started: 4/27/06 0810	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/27/06 1010	Checked By:

Source: Original field notes	PID/FID: PID
------------------------------	--------------

DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION	GRAPHIC LOG	SOIL CLASS	COMMENTS	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECD					
0					Pond Water and Plant Debris Depth = 3'.				
5		DP-1.5-3	25		CLAYEY SAND (SC), dark grayish brown (2.5Y 4/2), Very loose, wet, pond sediment 60% fine to medium sand, 40% fines.	SC	1140	0.2	
5		DP-1.5-5					0920	0.3	
10		DP-1.5-10	53		SILTY SAND (SM), olive yellow (2.5Y 6/8), Loose, wet, 80% fine to medium sand, 20% fines.	SM			
10		DP-1.5-10			SILTY SAND (SM/SP), grayish brown (2.5Y 5/2), Medium dense, wet, 90% fine to medium sand, 10% fines.	SM/SP	0930	.01	
15		DP-1.5-15	51		occasional graywacke pebbles.		0940	0.0	
20		DP-1.5-20	30				0950	0.2	
20		DP-1.5-22.5	8		CLAYEY SAND (SC), light olive brown (2.5Y 5/6), Dense, moist, Marine Terrace Deposits, 70% fine to medium sand, 30% fines.	SC		0.0	
							1010 Boring Terminated Total Depth = 23'	0.0	

LOG_OF_BORING_FT_BRAGG.GPJ ACTON.GDT 7/6/06

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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-3.59

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Parcel 3, NW Corner of Dry Shed 4

Page 1 of 1

Drilling Company: RSI	Location (East/North): 6,050,687/2,293,571 (not surveyed)
Drilled By: Martin Morales	Ground Surface Elevation:
Drilling Method: Direct Push	Water Depth (Date, Time): 5.50' BGS
Boring Diameter: 2.25"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 12' BGS
	Weather: clear/warm

Drilling Started: 10/10/05 1132	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 10/10/05 1150	Checked By:

Source: Original field notes PID/FID:

DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION <small>SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER</small>	GRAPHIC LOG	SOIL CLASS	COMMENTS <small>DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL</small>	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D					
0		DP-3.59-1 DUPE 20		32	FILL - SILTY GRAVEL (GM), grayish brown (2.5Y 5/2), Loose, Dry, 70% fine gravel, 0.5 cm clast, 20% fine sand, 10% fines.		GM	1140	1.2
5		DP-3.59-5		36	FILL - SILTY SAND (SM), dark gray (2.5Y N4/), Medium Dense, Moist, 80% fine to medium sand, 20% fines.		SM	1145	0.8
				47	Wet. light olive brown (2.5Y 5/3), Fill?				
10								Boring Terminated Total Depth = 12'	

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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-3.60

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Parcel 3, NW Corner of Dry Shed 4

Page 1 of 1

Drilling Company: RSI	Location (East/North): 6,050,634/2,293,538 (not surveyed)
Drilled By: Martin Morales	Ground Surface Elevation:
Drilling Method: Direct Push	Water Depth (Date, Time): 6.00' BGS (10/10/05)
Boring Diameter: 2.25"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 12' BGS
	Weather: clear/warm

Drilling Started: 10/10/05 1448	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 10/10/05 1505	Checked By:

Source: Original field notes PID/FID:

DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECYD					
0		DP-3.60-1	38		FILL - SILTY GRAVEL (GM), grayish brown (2.5Y 5/2), Medium Dense, Dry, 70% fine gravel, 30% fine to medium sand.		GM	1450	0
5		DP-3.60-5	41		FILL - SILTY SAND (SM), olive yellow (2.5Y 6/8), Medium Dense, Moist, 70% fine to medium sand, 30% fines. ↓ light gray (2.5Y 7/2). ↓ Wet. ↓ Fill?. ↓ olive yellow (2.5Y 6/8).		SM	1458	0
10								Boring Terminated Total Depth = 12'	

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LOG OF BORING

Facility: G-P Fort Bragg

DP-4.7

Address: 90 W. Redwood Ave.
Fort Bragg, CA

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

AME Project No.: 16017.08

Area No./ Description: Former North Pond Area

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,000/2,292,277 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 19.30' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 24' BGS
	Weather: Sunny/Warm

Drilling Started: 4/17/06 0955	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/17/06 1040	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION	GRAPHIC LOG	SOIL CLASS	COMMENTS	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECVD					
0					↓ Pond Water and Plant Debris Depth = 1'				
0 - 12		DP-4.7-1	12		ORGANIC SOIL (OH), black (2.5Y N2/), Very loose, wet, water and pond sediment 20% fines, 80% organic material.		OH	1250 Too Soft to Sample	
10 - 15		DP-4.7-9	5	5	ORGANIC SOIL (OH), black (2.5Y N2/), Very loose, wet, pond sediment 40% fines, 60% organic material.		OH	1000	
15 - 27		DP-4.7-15		27	↓ 60% fines, 40% organic material.			1015	0.8
20 - 47		DP-4.7-20		47				1025	0.0
47 - 24		DP-4.7-23	6	6	CLAYSTONE, dark olive gray (5Y 3/2), Franciscan Complex, low hardness, deeply weathered, hard, moderately weathered.		CS	1035 Boring Terminated Total Depth = 24'	

LOG_OF_BORING_FT_BRAGG.GPJ ACTON.GDT 7/7/06

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LOG OF BORING

Facility: G-P Fort Bragg

DP-4.9

Address: 90 W. Redwood Ave.
Fort Bragg, CA

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

AME Project No.: 16017.08

Area No./ Description: Pond 6 (Center)

Page 1 of 2

Drilling Company: Precision	Location (East/North): 6,049,959/2,292,039 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 11.69' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 38' BGS
	Weather: Overcast

Drilling Started: 4/25/06 1355	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/25/06 1535	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION	GRAPHIC LOG	SOIL CLASS	COMMENTS	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECD					
0					Pond Water and Plant Debris Depth = 4'.				
5		DP-4.9-4.5	12		ORGANIC SOIL (OH), black (2.5Y N2/), Very loose, wet, pond sediment 60% fines, 40% organic material.	OH		1400 (hand sampled) Too Soft to Sample	
10		DP-4.9-10	27		SILTY SAND (SM), dark grayish brown (2.5Y 4/2), Medium dense, wet, 70% fine to medium sand, 30% fines.	SM		1410 Running sands	0.3
15		DP-4.9-15	46		dark gray (2.5Y N4/).			1430	0.3
20		DP-4.9-20	50		olive brown (2.5Y 4/3), 5% organic material.				
20		DP-4.9-20			POORLY GRADED SAND (SP), gray (2.5Y 5/1), Medium dense, wet, 100% fine to medium sand. beach or dune deposits (?).	SP		1445	0.2
25		DP-4.9-25	55		faint horizontal banding.			1455	0.4
30			33		1" thick vertical clay pipe krotovina.				

LOG_OF_BORING_FT_BRAGG.GPJ ACTON.GDT 7/7/06

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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-4.9

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Pond 6 (Center)

Page 2 of 2

DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D					
30		DP-4.9-30			POORLY GRADED SAND (SP), gray (2.5Y 5/1), Medium dense, wet, 100% fine to medium sand. 100% fine sand.			1510	0.2
				52					
35		DP-4.9-35			CLAYEY GRAVEL (GC), very dark gray (2.5Y N3/), Dense, wet, older alluvium, subrounded graywacke clasts, 70% gravel, 1 cm clast, 10% fine sand, 20% fines.		GC	1525	
					LEAN TO FAT CLAY (CL/CH), very dark gray (2.5Y N3/), Stiff, moist, sharp horizontal contact, older alluvium 10% fine sand, 90% fines.		CL/ CH	Boring Terminated Total Depth = 38'	

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LOG OF BORING

Facility: G-P Fort Bragg

DP-4.10

Address: 90 W. Redwood Ave.
Fort Bragg, CA

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

AME Project No.: 16017.08

Area No./ Description: Pond 6 (South End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,049,943/2,291,993 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 11.69' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 26.5' BGS
	Weather: Sunny/Warm

Drilling Started: 4/18/06 1320	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/18/06 1435	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION	GRAPHIC LOG	SOIL CLASS	COMMENTS	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D					
0					Pond Water and Plant Debris Depth = 11'.				
24		DP-4.10-11			ORGANIC SOIL (OH), black (2.5Y N2), Very loose, wet, pond sediment 70% fines, 30% organic material.			1325	1.3
45									
15		DP-4.10-16			SILTY SAND (SM), dark gray (2.5Y 4/1), Medium dense, wet, fill?, 5% wood fragments 70% fine to medium sand, 30% fines.		SM	1350	0.9
46									
20		DP-4.10-21			POORLY GRADED SAND (SP), gray (5Y 5/1), Medium dense, wet, mainly quartz w/ some lithic grains 90% fine to medium sand, 10% fines.		SP	1400, 3' heaving sands	3.0
25					alluvium, micaceous, subangular to subrounded quartz, wood fragments at 1%, shell fragments.				
30									
25		DP-4.10-25.5			subrounded clasts, black chert pebbles, 1/2" thick horizontal clay seam.			1530	3.3
								Boring Terminated Total Depth = 26.5'	

LOG OF BORING FT. BRAGG.GPJ ACTON.GDT 7/10/06

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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-4.11

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Pond 7 (West End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,012/2,291,876 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 12.65' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 23' BGS
	Weather: Sunny/Warm

Drilling Started: 4/17/06 1445	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/17/06 1530	Checked By:

Source: Original field notes PID/FID: PID

DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D					
0					Pond Water and Plant Debris Depth = 7'.				
12		DP-4.11-7	0		ORGANIC SOIL (OH), black (2.5Y N2/), Very loose, wet, pond sediments 80% fines, 20% organic material.		OH	1120 (4/18/2006), no encores	
15		DP-4.11-13	36					1500	0.1
20		DP-4.11-18	33		LEAN CLAY (CL), dark gray (2.5Y 4/1), Medium dense, moist, weathered claystone 100% fines. CLAYSTONE, olive gray (5Y 5/2), Franciscan claystone, moderately hard, moderately weathered.		CL		
					hard, weakly weathered, anhydrite ? veinlets; slight waxy luster.		CS	1515	0.2
								Boring Terminated Total Depth = 23'	

LOG_OF_BORING_FT_BRAGG.GPJ ACTON.GDT 7/7/06

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LOG OF BORING

Facility: G-P Fort Bragg

DP-4.12

Address: 90 W. Redwood Ave.
Fort Bragg, CA

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

AME Project No.: 16017.08

Area No./ Description: Pond 7 (Central Part)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,057/2,291,879 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 12.65' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 20' BGS
	Weather: Clear/Cool

Drilling Started: 4/18/06 0758	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/18/06 0825	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECVD					
0					Pond Water and Plant Debris Depth = 7'.				
12		DP-4.12-7	0		ORGANIC SOIL (OH), black (2.5Y N2/), Very loose, wet, pond sediment, microscopic metallic flecks, 80% fines, 20% organic material.		OH	0850	0.3
15		DP-4.12-13	36					0800	0.3
21		DP-4.12-18	21		CLAYSTONE, dark olive gray (5Y 3/2), Franciscan Complex, moderately hard, moderately weahtered.		CS	0815	0.7
20								Boring Terminated Total Depth = 20'	

LOG_OF_BORING_FT_BRAGG.GPJ ACTON.LGDT 7/7/06

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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-4.13

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Pond 7 (East Part)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,107/2,291,878 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 12.65' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 12' BGS
	Weather: Clear/Cool

Drilling Started: 4/18/06 0945	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/18/06 1100	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECD					
0					Pond Water and Plant Debris Depth = 6'.				
12		DP-4.13-6			ORGANIC SOIL (OH), black (2.5Y N2/), Very loose, wet, pond sediment, microscopic metal flecks, slight sheen 70% fines, 30% organic matter.	OH	0950		0.7
12					LEAN CLAY (CL), dark gray (2.5Y N4/), Medium dense, moist, 100% fines.	CL			
36					CLAYSTONE, dark olive gray (5Y 3/2), Franciscan claystone w/ anhydrite ? veinlets, deeply weathered, moderately hard.	CS			
10		DP-4.13-11			SERPENTINE, grayish olive green (5GY 3/2), moderately hard, moderately weathered.		1050	Boring Terminated Total Depth = 12'	4.7

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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-4.14

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Pond 8 (West End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,049,491/2,291,510 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 38.60' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 14' BGS
	Weather: Overcast

Drilling Started: 4/24/06 0825	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/24/06 0900	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE INTERVAL	SAMPLE ID	BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
			BLOWS/6 IN. (N)	IN. RECVD					
0					Pond Water and Plant Debris Depth = 6'.				
0		DP-4.14-6	0		ORGANIC SOIL (OH), black (2.5Y N2/), Very loose, wet, pond sediment 70% fines, 30% organic material.		OH	0900	
30					SILTY SAND (SM), olive gray (5Y 4/2), Medium dense, wet, 70% fine to medium sand, 30% fines.		SM	0840	0.3
10		DP-4.14-10			SANDSTONE (SS), graywacke, deeply weathered, slightly serpentinized, low hardness.		SS		
12		DP-4.14-13.5			moderately hard, moderately weathered.			0850 Boring Terminated Total Depth = 14'	0.1

LOG_OF_BORING_FT_BRAGG.GPJ ACTON.GDT 7/7/06

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LOG OF BORING

Facility: G-P Fort Bragg

DP-4.15

Address: 90 W. Redwood Ave.
Fort Bragg, CA

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

AME Project No.: 16017.08

Area No./ Description: Pond 8, West Part (East End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,049,761/2,291,579 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 38.60' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 16' BGS
	Weather: Overcast

Drilling Started: 4/20/06 1340	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/20/06 1420	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D					
0					Pond Water and Plant Debris Depth = 3'.				
3		DP-4.15-3		12	ORGANIC SOIL (OH), black (2.5Y N2/), Very loose, wet, pond sediment 80% fines, 20% organic material.		OH	1436	0.1
5		DP-4.15-5 Dupe 56						1345 Dupe 56	
10		DP-4.15-10		42	SILTY SAND (SM), olive gray (5Y 5/2), Medium dense, wet, 80% fine to medium sand, 20% fines.		SM	1355	0.2
15		DP-4.15-14.5		24	SANDSTONE (SS), black (N 2.5/), Franciscan Complex graywacke, hard, weakly weathered.		SS	1410	0.3
								Boring Terminated Total Depth = 16'	

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LOG OF BORING

Facility: G-P Fort Bragg

DP-5.60

Address: 90 W. Redwood Ave.
Fort Bragg, CA

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

AME Project No.: 16017.08

Area No./ Description: Pond 8, East End (West Part)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,346/2,291,663 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 38.60' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 22' BGS
	Weather: Overcast/Cool

Drilling Started: 4/20/06 0830	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/20/06 1015	Checked By:

Source: Original field notes PID/FID: PID

DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECVD					
0					Pond Water and Plant Debris Depth = 5'.				
5					ORGANIC SOIL (OH), black (2.5Y N2/), Very loose, wet, pond sediment 60% fines, 40% organic material.		OH		
10		DP-5.60-8	18					0850 Dupe 55	0.1
15		DP-5.60-13	3		LEAN CLAY (CL), olive gray (5Y 4/2), Medium dense, moist, 5% fine gravel, 90% fines, 5% organic material.		CL	0900	
20		DP-5.60-17	12		10% fine to coarse gravel, 90% fines.		SS	0910	1.1
21.5		DP-5.60-21.5	48		SANDSTONE (SS), gray (5Y 6/1), Franciscan Complex sandstone, moderately weathered, moderately hard.			12	
					Hard.			0950 Boring Terminated Total Depth = 22'	0.1

LOG_OF_BORING_FT_BRAGG.GPJ ACTON.GDT 7/7/06

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LOG OF BORING

Facility: G-P Fort Bragg

DP-5.61

Address: 90 W. Redwood Ave.
Fort Bragg, CA

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

AME Project No.: 16017.08

Area No./ Description: Pond 8 (East End)

Page 1 of 2

Drilling Company: Precision	Location (East/North): 6,050,783/2,291,991 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 38.60' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 38' BGS
	Weather: Clear/Sunny

Drilling Started: 4/19/06 0839	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/19/06 1010	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION <small>SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER</small>	GRAPHIC LOG	SOIL CLASS	COMMENTS <small>DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL</small>	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D					
0					Pond Water and Plant Debris Depth = 10'.				
10		DP-5.61-10	24		ORGANIC SOIL (OH), black (2.5Y N2/), Very loose, wet, pond sediment 50% fines, 50% organic material.		OH	1005 Attempt to core through wood ~ failed, moved 10' West	0.0
15		DP-5.61-15	34		FAT CLAY (CH), olive gray (5Y 4/2), Medium dense, wet, 90% fines, 10% organic material.		CH	1010	0.0
20		DP-5.61-20	26		SILTY SAND (SM), gray (5Y 6/1), Medium dense, wet, 70% fine to medium sand, 25% fines, 5% wood debris.		SM	1030	0.0
25		DP-5.61-25	46		WELL GRADED SAND (SW), dark grayish brown (2.5Y 4/2), Medium dense, wet, alluvium (?), multicolored, subrounded grains, small subround pebbles, vertical oriented decayed rootlets 90% fine to medium sand, 10% fines.		SW	1040	0.1
30			51						

LOG_OF_BORING_FT_BRAGG.GPJ_ACTON.GDT 7/7/06

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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-5.61

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Pond 8 (East End)

Page 2 of 2

DEPTH (feet)	SAMPLE INTERVAL	SAMPLE ID	BLOW COUNTS		SOIL DESCRIPTION	GRAPHIC LOG	SOIL CLASS	COMMENTS	
			BLOWS/6 IN. (N)	IN. RECD				DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
30		DP-5.61-30			WELL GRADED SAND (SW), dark grayish brown (2.5Y 4/2), Medium dense, wet, alluvium (?), multicolored, subrounded grains, small subround pebbles, vertical oriented decayed rootlets 90% fine to medium sand, 10% fines. 4" layer of graywacke pebbles.			1115 4' Flowing Sands	0.1
35		DP-5.61-35		45	SILTY SAND AND SANDY CLAY (SM AND CL), very dark gray (2.5Y N3/), Medium dense, wet, alluvium, thinly interbedded sand and clay, micaceous 50% fine sand, 50% fines.		SM	1150	0.2
								Boring Terminated Total Depth = 38'	

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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-5.62

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Pond 8, Near Storm Drain Outlet (East End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,779/2,291,681 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 38.60' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 27.5' BGS
	Weather: Overcast

Drilling Started: 4/24/06 1250	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/24/06 1350	Checked By:

Source: Original field notes PID/FID: PID

DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION	GRAPHIC LOG	SOIL CLASS	COMMENTS	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECD					
0					Pond Water and Plant Debris Depth = 4'.				
5		DP-5.62-4	0		FAT CLAY (CH), black (2.5Y N2/), Very loose, wet, pond sediment 70% fines, 30% organic material.		CH	1350 (hand sample)	0.9
10		DP-5.62-9	4		30% fines, 70% organic material.			1300	
15		Dupe 57 DP-5.62-14	46		70% fines, 30% organic material.			Dupe 57 1310	0.3
20		DP-5.62-19	16		LEAN CLAY (CL), light olive brown (2.5Y 5/6), Medium dense, wet, 30% fine sand, 70% fines.		CL	1315	0.1
25		DP-5.62-24	24		CLAYSTONE, dark grayish brown (2.5Y 4/2), Franciscan Complex, moderately hard, moderately weathered, anhydrite ? veins.		CS	1320	0.3
								Boring Terminated Total Depth = 27.5'	

LOG OF BORING FT. BRAGG.GPJ, ACTON.GDT 7/7/06

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LOG OF BORING

Facility: G-P Fort Bragg

DP-5.63

Address: 90 W. Redwood Ave.
Fort Bragg, CA

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

AME Project No.: 16017.08

Area No./ Description: Pond 5

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,051,286/2,291,938 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 51.50' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 24' BGS
	Weather: Cloudy/Cool

Drilling Started: 4/25/06 0855	Logged By: C. O'Donnell
Drilling Finished: 4/25/06 1010	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION	GRAPHIC LOG	SOIL CLASS	COMMENTS	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECVD					
0					Pond Water and Plant Debris Depth = 12'.				
12		DP-5.63-12			ORGANIC SOIL (OH), black (2.5Y N2/), Loose, wet, roots, organic material, wood fragments, saturated 40% fine sand, 60% fines.	OH		0900	
15					SILTY SAND (SM/SP), light olive brown (2.5Y 5/3), Medium dense, wet, homogeneous fine grained sand 80% fine to medium sand, 20% fines.	SM/SP			
20		DP-5.63-18			SILTY SAND AND SANDY CLAY (SM AND CL), dark gray (2.5Y 4/1), Dense, wet, 40% fine sand, 60% fines.	SM			
22		DP-5.63-22			SILTY SAND (SM), dark gray (5Y 4/1), Medium dense, moist, homogeneous fine grained sand 75% fine to medium sand, 25% fines.	SM			
24					CLAYEY GRAVEL (GC), dark gray (5Y 4/1), Dense, wet, large shell fragments, rounded gravels w/ 3 cm angular claystone clasts 35% fine to coarse gravel, 3 cm clast, 55% fine to medium sand, 10% fines.	GC		0935	
					CLAYSTONE, Franciscan Complex, fractured, some anhydrite veins or quartz inclusions.	CS			0.3
								Boring Terminated Total Depth = 24'	

LOG OF BORING FT_BRAGG.GPJ ACTON.GDT 7/7/06

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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-7.9

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Pond 1 (North End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,651/2,290,021 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 72.66' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 12' BGS
	Weather: Rainy/Cool

Drilling Started: 4/12/06 0855	Logged By: C. O'Donnell
Drilling Finished: 4/12/06 0950	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D					
0					Pond Water and Plant Debris Depth = 5'.				
5		DP-7.9-5 Dupe 52	30		ORGANIC SOIL (OH), black (2.5Y 2.5/1), Loose, wet, wood fragments, organic matter 30% fine sand, 70% fines.	OH	0915		0.1
12			12		FAT CLAY (CH), grayish brown (2.5Y 5/2), Medium dense, wet, wood fragments 40% fine sand, 60% fines.	CH			
12			12		CLAYEY GRAVEL (GC), dark yellowish brown (10YR 3/6), Dense, dry to moist, terrace deposits, mottled w/ light grayish brown coloration, gravels rounded to subrounded 5% fine gravel, 1 cm clast, 35% fine sand, 60% fines.	GC			
10		DP-7.9-10	24				0920		0.5
								Boring Terminated Total Depth = 12'	

LOG_OF_BORING_FT_BRAGG.GPJ ACTON.GDT 7/7/06

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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-7.10

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Pond 1 (South End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,657/2,289,837 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 72.66' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 10.5' BGS
	Weather: Rain

Drilling Started: 4/12/06 1354	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/12/06 1520	Checked By:

Source: Original field notes

PID/FID: PID

DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECD				
0					Pond Water and Plant Debris Depth = 2'			
3.6		DP-7.10-2	36		ORGANIC SOIL (OH), black (2.5Y N2), Very loose, wet, pond sediments 70% fines, 30% organic matter.	OH	1450	0.3
4.0			4		FILL - LEAN CLAY (CL), olive gray (5Y 5/2), Loose, wet, fill 100% fines.	CL		
5.2		DP-7.10-7	12		SILTY GRAVEL (GM), olive (5Y 5/6), Medium dense, moist, Marine Terrace Deposits, rounded clasts 60% gravel, 7.5 cm clast, 30% fine to medium sand, 10% fines.	GM	1520	0.4
10.5							Boring Terminated Total Depth = 10.5'	

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LOG OF BORING

Facility: G-P Fort Bragg

DP-7.11

Address: 90 W. Redwood Ave.
Fort Bragg, CA

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

AME Project No.: 16017.08

Area No./ Description: Pond 2 (North End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,522/2,290,050 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 70.47' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 18' BGS
	Weather: Cloudy

Drilling Started: 4/5/06 0830	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/5/06 0945	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECVD					
0					Pond Water and Plant Debris Depth = 8'.				
35					ORGANIC SOIL (OH), black (2.5Y 2.5/1), Pond Sediment, 30% Organic Material.				
10		DP-7.11-10					0920		2.0
60		DP-7.11-12.5			CLAYSTONE, olive (5Y 4/4), Low hardness, deeply weathered.		0930		
15		DP-7.11-15					1030		0.7
								Boring Terminated Total Depth = 18'	

LOG_OF_BORING_FT_BRAGG.GPJ ACTON.GDT 7/10/06

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LOG OF BORING

Facility: G-P Fort Bragg

DP-7.12

Address: 90 W. Redwood Ave.
Fort Bragg, CA

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

AME Project No.: 16017.08

Area No./ Description: Pond 2 (South End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,497/2,289,927 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 70.47' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 15.2' BGS
	Weather: Clear/Slightly Windy

Drilling Started: 4/5/06 1520	Logged By: C. O'Donnell
Drilling Finished: 4/5/06 1630	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION	GRAPHIC LOG	SOIL CLASS	COMMENTS	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D					
0					Pond Water and Plant Debris Depth = 8'.				
5									
10		DP-7.12-10		31	ORGANIC SOIL (OH), very dark brown (10YR 2/2), Loose, wet, organic matter, saturated 70% fine to medium sand, 30% fines.	OH CH		15:35	0.4
15		DP-7.12-15		24	FAT CLAY (CH), dark gray (2.5Y 4/1), Medium dense, moist, mottled with red brown coloration, wood fragments, gravels well rounded 5% fine gravels, >1 cm clast, 35% fine sand, 60% fines. CLAYSTONE, dark grayish brown (2.5Y 4/2), Dense, moist, 10% fine gravel, >1 cm clast.	CS		15:50 Boring Terminated Total Depth = 15.2'	0.3

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LOG OF BORING

Facility: G-P Fort Bragg

DP-7.13

Address: 90 W. Redwood Ave.
Fort Bragg, CA

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

AME Project No.: 16017.08

Area No./ Description: Pond 3 East Section (East End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,371/2,290,005 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 60.08' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 18' BGS
	Weather: Cloudy

Drilling Started: 4/6/06 0821	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/6/06 0900	Checked By:

Source: Original field notes

PID/FID: PID

DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECY'D					
0					Pond Water and Plant Debris Depth = 8'.				
37	DP-7.13-8				ORGANIC SOIL (OH), black (2.5Y N2/), Very loose, wet, pond sediments 80% fines, 20% organic matter.		OH	0850	0.6
38					CLAYSTONE, dark gray (5YR 4/1), Franciscan Complex claystone, moderate hardness, moderately weathered, anhydrite ? veins.		CS	0855	0.3
15	DP-7.13-15								
Boring Terminated Total Depth = 18'									

LOG_OF_BORING_FT_BRAGG.GPJ ACTON.GDT 7/6/06

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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-7.14

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Pond 3 Eastern Portion (West End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,229/2,290,170 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 60.08' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 16' BGS
	Weather: Cloudy

Drilling Started: 4/6/06 1125	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/6/06 1215	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECY'D					
0					Pond Water and Plant Debris Depth = 1'.				
2.625		DP-7.14-2	26		ORGANIC SOIL (OH), black (2.5Y N2), Very loose, wet, pond sediment 30% organic matter.	OH	1135	0.3	
5.25		DP-7.14-7	60				1145	0.3	
10.5					CLAYSTONE, very dark gray (5YR 3/1), Franciscan Complex claystone w/ anhydrite ? veinlets, moderate hardness, moderately weathered.	CS			
15.625		DP-7.14-14	20				1156	0.0	
16							Boring Terminated Total Depth = 16'		

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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillside Circle #100
El Dorado Hills, CA 95762

DP-7.15

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Pond 3 Western Portion (East Part)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,051/2,290,315 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 60.08' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 16' BGS
	Weather: Cloudy

Drilling Started: 4/6/06 1414	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/6/06 1459	Checked By:

Source: Original field notes PID/FID: PID

DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D					
0					Pond Water and Plant Debris Depth = 8'.				
10		DP-7.15-8	36		FAT CLAY (CH), black (2.5Y N2/), Very Loose, wet, pond sediments 10% organic matter.		CH	1429	2.1
15		DP-7.15-13	31		SILTY SAND (SM), gray (5Y 5/1), Medium dense, wet, 70% fine to medium sand, 30% fines. CLAYSTONE, very dark gray (5YR 3/1), Franciscan Complex claystone w/ anhydrite ? veins, moderate hardness, moderately weathered.		SM		
							CS	1450	0.0
								Boring Terminated Total Depth = 16'	

LOG_OF_BORING_FT_BRAGG.GPJ ACTON.GDT 7/6/06

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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-7.16

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Pond 3, Western Portion Nearest to Water Treatment Plant

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,049,962/2,290,424 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 60.08' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 16' BGS
	Weather: Cloudy/Cool/Chance of Rain

Drilling Started: 4/10/06 0935	Logged By: C. O'Donnell
Drilling Finished: 4/10/06 1025	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D					
0					Pond Water and Plant Debris Depth = 8'.				
5									
10		DP-7.16-10			SILTY SAND (SM), olive brown (2.5Y 4/3), Loose, wet, organic matter, wood fragments, mottled w/ very dark grayish brown, 80% fine to medium sand, 20% fines.	[Pattern]	SM	1000	0.1
12					FAT CLAY (CH), dark gray (5Y 4/1), Loose, wet, organic matter, wood fragments 60% fine sand, 40% fines.	[Pattern]	CH		
15					SILTY SAND (SM), dark gray (5Y 4/1), Medium dense, wet, wood fragments, some FeOH staining 75% fine to medium sand, 25% fines.	[Pattern]	SM		
					CLAYSTONE, Very dense, dry, fractured.	[Pattern]	CS		
								Boring Terminated Total Depth = 16'	

LOG_OF_BORING_FT_BRAGG.GPJ ACTON.GDT 7/7/06

**ACTON •
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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-7.17

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

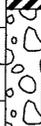
Area No./ Description: Pond 4 (West End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,486/2,289,719 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 68.63' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 13' BGS
	Weather: Clear/Cool

Drilling Started: 4/13/06 0930	Logged By: C. O'Donnell
Drilling Finished: 4/13/06 1005	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION	GRAPHIC LOG	SOIL CLASS	COMMENTS	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D					
0					Pond Water and Plant Debris Depth = 5'.				
5		DP-7.17-5	4.5		FAT CLAY (CH), yellowish brown (10YR 5/6), Loose, wet, organic material, rounded gravels 15% fine to coarse gravel, 1 cm clast, 40% fine to medium sand, 45% fines.		CH	0935	1.4
10		DP-7.17-10	57		POORLY GRADED GRAVEL (GP), dark brown (7.5YR 3/3), Dense, wet, terrace deposits, subrounded gravels 5% fine gravel, >1 cm clast, 75% fine to medium sand, 25% fines.		GP	1000	2.8
								Boring Terminated Total Depth = 13'	

LOG_OF_BORING_FT_BRAGG.GPJ ACTON.GDT 7/7/06

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ENVIRONMENTAL, INC.**

LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-7.18

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Pond 4 (East End)

Page 1 of 1

Drilling Company: Precision	Location (East/North): 6,050,574/2,289,729 (not surveyed)
Drilled By: Rodrigo Cano	Ground Surface Elevation: 68.63' (not surveyed)
Drilling Method: Sonic	Water Depth (Date, Time):
Boring Diameter: 2.625"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 13' BGS
	Weather: Sunny

Drilling Started: 4/13/06 0830	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 4/13/06 0855	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE INTERVAL	SAMPLE ID	BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
			BLOWS/6 IN. (N)	IN. RECV'D					
0					Pond Water and Plant Debris Depth = 5'.				
5	DP-7.18-5		20		FAT CLAY (CH), olive brown (2.5Y 4/4), Very loose, wet, pond sediments 100% fines.		CH	0840	2.0
					LEAN CLAY (CL), olive gray (5Y 5/2), Medium dense, wet, 10% fine sand, 90% fines.		CL		
			44		POORLY GRADED GRAVEL (GP), olive yellow (5Y 6/6), Dense, moist, Marine Terrace Deposits, subrounded clasts 60% fine gravel, 0.5 cm clast, 30% fine to medium sand, 10% fines.		GP	0850	0.0
10	DP-7.18-10							Boring Terminated Total Depth = 13'	

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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-8.7

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Parcel 8, Clinker Area

Page 1 of 1

Drilling Company: RSI	Location (East/North): 6,048,837/2,289,913 (not surveyed)
Drilled By: Jorge Morales	Ground Surface Elevation:
Drilling Method: Direct Push	Water Depth (Date, Time):
Boring Diameter: 2.25"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 6' BGS
	Weather:

Drilling Started: 1/24/06 1030	Logged By: T.E. Carroll
Drilling Finished: 1/24/06 1045	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D					
0					SILT (ML), black (2.5Y N2/), Loose to Medium dense, dry to moist, ash to 40-50%, Wood to 10% 40% fines.		ML		
		DP-8.7-2 Dupe 45						1034	
5		DP-8.7-5			SILTY SAND (SM), light olive brown (2.5Y 5/6), Medium dense, moist to wet, wood to 10% 60% fine sand, 30% fines.		SM	1038	
								Boring Terminated Total Depth = 6' No Ground Water Encountered	

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LOG OF BORING

Facility: G-P Fort Bragg

DP-8.9

Address: 90 W. Redwood Ave.
Fort Bragg, CA

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

AME Project No.: 16017.08

Area No./ Description: Parcel 8, Clinker Area

Page 1 of 1

Drilling Company: RSI	Location (East/North): 6,048,708/2,290,083 (not surveyed)
Drilled By: Jorge Morales	Ground Surface Elevation:
Drilling Method: Direct Push	Water Depth (Date, Time):
Boring Diameter: 2.25"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 6' BGS
	Weather:

Drilling Started: 1/24/06 1130	Logged By: T.E. Carroll
Drilling Finished: 1/24/06 1140	Checked By:

Source: Original field notes	PID/FID: PID
------------------------------	--------------

DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION <small>SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER</small>	GRAPHIC LOG	SOIL CLASS	COMMENTS <small>DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL</small>	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECVD					
0					SILT (ML), black (2.5Y N2/), Loose to medium dense, wet, wood at 30%, possible ash at 30% 40% fines.		ML	1131	
		DP-8.9-2.5							
5					SILTY SAND (SM), light olive brown (2.5Y 5/6), medium dense, wet, wood at 5% 60% fine sand, 35% fines.		SM	1137 Boring Terminated Total Depth = 6'	
		DP-8.9-5							

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LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-10.9

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Parcel 10, Clinker Area

Page 1 of 1

Drilling Company: RSI	Location (East/North): 6,048,402/2,289,991 (not surveyed)
Drilled By: Jorge Morales	Ground Surface Elevation:
Drilling Method: Direct Push	Water Depth (Date, Time):
Boring Diameter: 2.25"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 10' BGS
	Weather: clear/cool

Drilling Started: 1/26/06 0914	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 1/26/06 0930	Checked By:

Source: Original field notes	PID/FID: PID
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DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION SOIL NAME, COLOR, RELATIVE DENSITY OR CONSISTENCY, MOISTURE, PARTICLE SIZE RANGE, OTHER	GRAPHIC LOG	SOIL CLASS	COMMENTS DRILLING RATE AND CONDITIONS, WATER DEPTH, BACKFILL	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECYD					
0				38	FILL - SILTY SAND (SM), black (2.5Y N2/), Loose, Moist, 70% fine to medium sand, 30% fines.		SM	0915	0
5		DP-10.9-5		47	FILL - SILTY SAND (SM), olive yellow (2.5Y 6/8), Medium Dense, Moist, 80% fine ot medium sand, 20% fines.		SM	0925	0
10		DP-10.9-9.5		24	very dark grayish brown (2.5Y 3/2), Black Staining on Coarse Sand Grains 80% medium to coarse sand, 20% fines.			0930 Boring Terminated Total Depth = 10' No Ground Water Encountered	0

LOG_OF_BORING_FT_BRAGG.GPJ ACTON.GDT 7/7/06

**ACTON •
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ENVIRONMENTAL, INC.**

LOG OF BORING

Facility: G-P Fort Bragg

5175 Hillsdale Circle #100
El Dorado Hills, CA 95762

DP-10.7

Address: 90 W. Redwood Ave.
Fort Bragg, CA

AME Project No.: 16017.08

Area No./ Description: Parcel 10, Clinker Area

Page 1 of 1

Drilling Company: RSI	Location (East/North): 6,048,449/2,289,975 (not surveyed)
Drilled By: Jorge Morales	Ground Surface Elevation:
Drilling Method: Direct Push	Water Depth (Date, Time):
Boring Diameter: 2.25"	Casing Elevation:
Sampling Method: Dual Tube	Total Depth (feet): 10' BGS
	Weather: overcast/cool

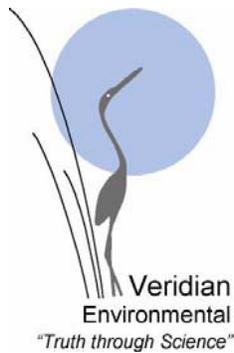
Drilling Started: 1/25/06 1309	Logged By: J.D. Matthey, R.G., C.E.G
Drilling Finished: 1/25/06 1319	Checked By:

Source: Original field notes	PID/FID: PID
------------------------------	--------------

DEPTH (feet)	SAMPLE		BLOW COUNTS		SOIL DESCRIPTION	GRAPHIC LOG	SOIL CLASS	COMMENTS	FIELD PID READING (ppm)
	INTERVAL	SAMPLE ID	BLOWS/6 IN. (N)	IN. RECV'D					
0				32	FILL - SILTY SAND (SM), black (2.5Y N2), Loose, Moist, 10% Wood Fragments 60% fine to medium sand, 30% fines. ▼ Medium Dense.		SM	1310	0
5		DP-10.7-5 Dupe 49		38	FILL - SILTY SAND (SM), olive yellow (2.5Y 6/8), Medium Dense, Moist, 80% fine to medium sand, 20% fines.		SM	1313 Dupe 49	0
10		DP-10.7-9.5		24	FILL - SILTY SAND (SM), light olive brown (2.5Y 5/6), Medium Dense, Moist, Marine Terrace Deposits 70% fine to medium sand, 30% fines.		SM	1319 Boring Terminated Total Depth = 10' No Ground Water Encountered	0

APPENDICES E AND F

**Sample Analytical Reports
Data Validation Summary Reports**



July 11, 2006

Prepared for:
Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT
Georgia-Pacific
California Wood Products
Manufacturing Facility

Laboratory Project ID:

- *Alta Analytical Laboratory, Inc.*
#27668
- *Curtis & Tompkins, Ltd.*
#186469

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on one soil sample collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the sample was analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment, (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-1.5-5	27688-001	27668	04/27/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data

that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The sample was analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results			✓	
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			✓	
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.5°C) of the sample upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of 4 ± 2°C. In addition, the sample was received in a clear glass jar as opposed to an amber jar as required by the method. These exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analytes were reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Reported positive results have been qualified as qualitatively questionable (U) on the associated qualified analytical result forms, where warranted. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	<u>Concentration</u>
Total PeCDF	0.186 pg/g
1,2,3,4,7,8-HxCDF	0.124 pg/g
1,2,3,6,7,8-HxCDF	0.0834 pg/g
Total HxCDF	0.588 pg/g
1,2,3,4,6,7,8-HpCDF	0.545 pg/g
Total HpCDF	0.545 pg/g
OCDF	0.508 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J” on the associated qualified analytical result forms.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

Sample ID(s)	SDG	Compound(s)	DV Qualifier	Reason(s)
DP-1.5-5	27668	1,2,3,4,6,7,8-HpCDF Total HpCDF OCDF	U	Positive result for analyte in laboratory method blank

In addition, all results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J”.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified a few minor aspects of the analytical data that required qualification due to laboratory method blank contamination and results below the calibration range of the instrument. To confidently use any of the analytical data within this sample set, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins

<u>Acronym</u>	<u>Definition</u>
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

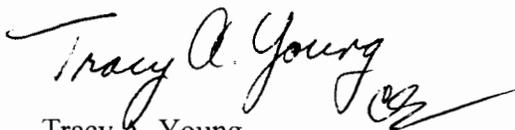
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Report Reviewed and Approved By:



Tracy A. Young
Quality Assurance Chemist



William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP-1.5-5		EPA Method 8290					
Client Data		Sample Data		Laboratory Data			
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27668-001		
Project:	Ft Bragg-Site Assessment 186469	Sample Size:	11.7 g	QC Batch No.:	8024		
Date Collected:	27-Apr-06	%Solids:	85.3	Date Analyzed DB-5:	17-May-06		
Time Collected:	0920			Date Analyzed DB-225:	NA		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0227		IS 13C-2,3,7,8-TCDD	74.4	40 - 135	
1,2,3,7,8-PeCDD	ND	0.0369		13C-1,2,3,7,8-PeCDD	62.5	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.0373		13C-1,2,3,4,7,8-HxCDD	74.5	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.0378		13C-1,2,3,6,7,8-HxCDD	76.7	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.0379		13C-1,2,3,4,6,7,8-HpCDD	69.6	40 - 135	
1,2,3,4,6,7,8-HpCDD	0.222			13C-OCDD	52.4	40 - 135	
OCDD	1.58			13C-2,3,7,8-TCDF	82.7	40 - 135	
2,3,7,8-TCDF	ND	0.0308		13C-1,2,3,7,8-PeCDF	70.9	40 - 135	
1,2,3,7,8-PeCDF	ND	0.0318		13C-2,3,4,7,8-PeCDF	67.4	40 - 135	
2,3,4,7,8-PeCDF	ND	0.0320		13C-1,2,3,4,7,8-HxCDF	71.7	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0269		13C-1,2,3,6,7,8-HxCDF	62.5	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0279		13C-2,3,4,6,7,8-HxCDF	70.0	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0305		13C-1,2,3,7,8,9-HxCDF	74.1	40 - 135	
1,2,3,7,8,9-HxCDF	0.148			13C-1,2,3,4,6,7,8-HpCDF	64.0	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.144			13C-1,2,3,4,7,8,9-HpCDF	54.9	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.0797		13C-OCDF	46.4	40 - 135	
OCDF	0.446			CRS 37Cl-2,3,7,8-TCDD	73.4	40 - 135	
Totals							
Total TCDD	ND	0.0227		Toxic Equivalent Quotient (TEQ) Data^e			
Total PeCDD	ND	0.0369		TEQ (Min):	0.0187		
Total HxCDD	ND	0.0377		a. Sample specific estimated detection limit.			
Total HpCDD	0.430			b. Estimated maximum possible concentration.			
Total TCDF	ND	0.0308		c. Method detection limit.			
Total PeCDF	ND	0.0319		d. Lower control limit - upper control limit.			
Total HxCDF	0.148		B	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (W/HO)			
Total HpCDF	0.144		B				

Analyst: JMH

Approved By: William J. Luksemburg

18-May-2006 14:27

ATTACHMENT B
SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Reviewed By: Jay

Sample Collection Dates: 4/27/06

Approved By: WJK

Client: Acton Mickelson Environmental, Inc.

Completion Date: 6/28/06 - 7/7/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 27668

*Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail	Problems Identified	Support Documentation Attachments
	Check if Yes or Footnote Letter for Comments Below	Check if Yes or Footnote Number for Comments Below	Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	1	✓
Laboratory Method Blank Results	✓	2	✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓	3	✓
Verification of the EDD in XLS Format	✓		✓

Comments: 1. Temperature at 0.5°C upon receipt to subcontract laboratory (versus 4±2°C in the method). The sample was in a clear, glass jar versus the amber jar specified in the method. No qualification warranted for temperature or container.
2. 1, 2, 3, 4, 5, 6, 7, 8-HpCDF flagged "U" ≤ 5x Method Blank women
OCDF flagged "U" ≤ 5x Method Blank women
Total HpCDF flagged "U" ≤ 5x Method Blank
3. All results reported at concentrations less than the calibration level (adjusted for dilution factors & sample sizes) flagged "U".

Curtis & Tompkins SDG: 186469

Method Blank				EPA Method 8290			
Matrix:	Soil	QC Batch No.:	8024	Lab Sample:	0-MB001	Date Analyzed DB-5:	17-May-06
Sample Size:	10.0 g	Date Extracted:	15-May-06	Date Analyzed DB-225:	NA		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0269		13C-2,3,7,8-TCDD	76.0	40 - 135	
1,2,3,7,8-PeCDD	ND	0.0385		13C-1,2,3,7,8-PeCDD	63.9	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.0387		13C-1,2,3,4,7,8-HxCDD	78.3	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.0422		13C-1,2,3,6,7,8-HxCDD	75.7	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.0408		13C-1,2,3,4,6,7,8-HpCDD	74.8	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.0331		13C-OCDD	53.4	40 - 135	
OCDD	ND		0.208	13C-2,3,7,8-TCDF	83.1	40 - 135	
2,3,7,8-TCDF	ND	0.0378		13C-1,2,3,7,8-PeCDF	70.0	40 - 135	
1,2,3,7,8-PeCDF	ND	0.0388		13C-2,3,4,7,8-PeCDF	68.4	40 - 135	
2,3,4,7,8-PeCDF	ND	0.0366		13C-1,2,3,4,7,8-HxCDF	71.5	40 - 135	
1,2,3,4,7,8-HxCDF	0.124			13C-1,2,3,6,7,8-HxCDF	64.3	40 - 135	J
1,2,3,6,7,8-HxCDF	0.0834			13C-2,3,4,6,7,8-HxCDF	72.4	40 - 135	J
2,3,4,6,7,8-HxCDF	ND	0.0305		13C-1,2,3,7,8,9-HxCDF	74.1	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0436		13C-1,2,3,4,6,7,8-HpCDF	66.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.545			13C-1,2,3,4,7,8,9-HpCDF	60.6	40 - 135	J
1,2,3,4,7,8,9-HpCDF	ND	0.0707		13C-OCDF	48.1	40 - 135	
OCDF	0.508			CRS 37Cl-2,3,7,8-TCDD	75.5	40 - 135	
Totals				Toxic Equivalent Quotient (TEQ) Data^c			
Total TCDD	ND	0.0269		TEQ (Min):	0.0262		
Total PeCDD	ND	0.0385		a. Sample specific estimated detection limit.			
Total HxCDD	ND	0.0406		b. Estimated maximum possible concentration.			
Total HpCDD	ND	0.0331		c. Method detection limit.			
Total TCDF	ND	0.0378		d. Lower control limit - upper control limit.			
Total PeCDF	0.186			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HxCDF	0.588						
Total HpCDF	0.545						

Analyst: JMH

Approved By:

William J. Luksemburg

18-May-2006 14:27

OPR Results		EPA Method 8290			
Matrix:	Soil	QC Batch No.:	8024	Lab Sample:	0-OPR001
Sample Size:	10.0 g	Date Extracted:	15-May-06	Date Analyzed DB-5:	17-May-06
				Date Analyzed DB-225:	NA
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	7 - 13	IS 13C-2,3,7,8-TCDD	77.7	40 - 135
1,2,3,7,8-PeCDD	50.0	35 - 65	13C-1,2,3,7,8-PeCDD	69.4	40 - 135
1,2,3,4,7,8-HxCDD	50.0	35 - 65	13C-1,2,3,4,7,8-HxCDD	79.6	40 - 135
1,2,3,6,7,8-HxCDD	50.0	35 - 65	13C-1,2,3,6,7,8-HxCDD	80.2	40 - 135
1,2,3,7,8,9-HxCDD	50.0	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	75.8	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	35 - 65	13C-OCDD	52.3	40 - 135
OCDD	100	70 - 130	13C-2,3,7,8-TCDF	86.1	40 - 135
2,3,7,8-TCDF	10.0	7 - 13	13C-1,2,3,7,8-PeCDF	74.9	40 - 135
1,2,3,7,8-PeCDF	50.0	35 - 65	13C-2,3,4,7,8-PeCDF	74.4	40 - 135
2,3,4,7,8-PeCDF	50.0	35 - 65	13C-1,2,3,4,7,8-HxCDF	73.0	40 - 135
1,2,3,4,7,8-HxCDF	50.0	35 - 65	13C-1,2,3,6,7,8-HxCDF	65.0	40 - 135
1,2,3,6,7,8-HxCDF	50.0	35 - 65	13C-2,3,4,6,7,8-HxCDF	73.3	40 - 135
2,3,4,6,7,8-HxCDF	50.0	35 - 65	13C-1,2,3,7,8,9-HxCDF	72.9	40 - 135
1,2,3,7,8,9-HxCDF	50.0	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	66.7	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	57.3	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	35 - 65	13C-OCDF	34.4	40 - 135
OCDF	100	70 - 130	CRS 37Cl-2,3,7,8-TCDD	76.7	40 - 135

Analyst: JMH

Approved By: William J. Luksemburg 18-May-2006 13:46

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 18, 2006

Alta Project I.D.: 27668

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the one soil sample received at Alta Analytical Laboratory on May 06, 2006 under your Project Name "Ft Bragg-Site Assessment 186469". This sample was extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

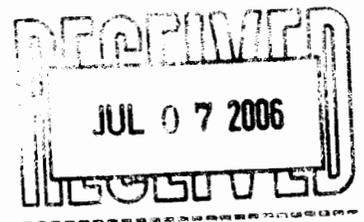
Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those specific test methods. This report should not be reproduced, except in full, without the written approval of ALTA.



Section I: Sample Inventory Report

Date Received: 5/6/2006

Alta Lab. ID

Client Sample ID

27668-001

DP-1.5-5

Curtis & Tompkins, Ltd.
 Analytical Laboratories, Since 1878
 2323 Fifth Street
 Berkeley, CA 94710
 (510) 486-0900
 (510) 486-0532

27668 0.5°C

Project Number: 186469
 Site: Ft Bragg-Site Assessment

Saturday delivery

Subcontract Laboratory:
 Alta Analytical Lab, Inc.
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 933-1640
 ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker
 *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
DP-1.5-5	04/27 09:20	Soil	8290	186469-001-	

Notes:	Relinquished By:	Received By:
	<i>Ann Adams</i>	<i>Michael J. Allen</i>
	Date/Time: 5/5/6 1314	Date/Time: 5/6/6 1115

Signature on this form constitutes a firm Purchase Order for the services requested above.

SAMPLE LOG-IN CHECKLIST

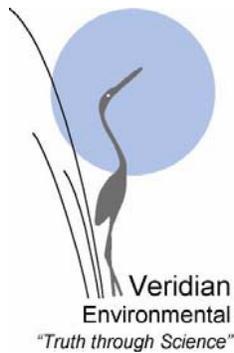
Alta Project #: 27668

Samples Arrival:	Date/Time 5/6/06 1115	Initials: MA	Location: WR-2
			Shelf/Rack:
Logged In:	Date/Time 5/8/06 0908	Initials: BSB	Location: WR-2
			Shelf/Rack: D-3
Delivered By:	FedEx	UPS	Cal
			DHL
			Hand Delivered
			Other
Preservation:	Ice	Blue Ice	Dry Ice
			None
Temp °C	0.5°	Time: 1120	Thermometer ID: DT-20

		YES	NO	NA
Adequate Sample Volume Received?		✓		
Holding Time Acceptable?		✓		
Shipping Container(s) Intact?		✓		
Shipping Custody Seals Intact?				✓
Shipping Documentation Present?		✓		
Airbill	Trk # C10129000026660	✓		
Sample Container Intact?		✓		
Sample Custody Seals Intact?				✓
Chain of Custody / Sample Documentation Present?		✓		
COC Anomaly/Sample Acceptance Form completed?			✓	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?				✓
Na ₂ S ₂ O ₃ Preservation Documented?	COC	Sample Container	None	
Shipping Container	Alta	Client	Return	Dispose

Comments:

Sample jar is clear glass. Sample I.D. is written on the cap of jar. 5/8/06 BSB



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT
Georgia-Pacific
California Wood Products
Manufacturing Facility

Laboratory Project IDs

- *Alta Analytical Laboratory, Inc.*
#27619
- *Curtis & Tompkins, Ltd.*
#186159

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on three soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-7.16-10	27619-001	27619	04/10/06	D
Soil	DP-7.9-5	27619-002	27619	04/12/06	D
Soil	DP-7.10-2	27619-003	27619	04/12/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical report forms so the data user can quickly assess the

qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results		✓		
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			✓	
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.2°C) of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^\circ\text{C}$. In addition, the samples were received in clear jars as opposed to amber jars as required by the method. These exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at a trace level in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Qualification of the data was not warranted on this basis. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	<u>Concentration</u>
Total HxCDF	0.111 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J” on the qualified analytical result forms.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J”.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

DV Qualifier	Definition
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified a few minor aspects of the analytical data that required qualification due to results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

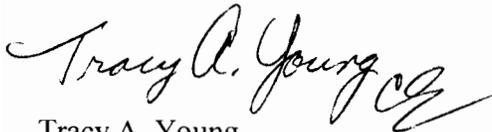
U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:



Tracy A. Young
Quality Assurance Chemist

Report Reviewed and Approved By:



William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP-7.16-10

EPA Method 8290

Client Data		Sample Data		Laboratory Data	
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27619-001
Project:	Ft Bragg-Site Assessment 186159	Sample Size:	11.9 g	Date Received:	20-Apr-06
Date Collected:	10-Apr-06	%Solids:	81.1	Date Extracted:	22-Apr-06
Time Collected:	1000			Date Analyzed DB-5:	26-Apr-06
				Date Analyzed DB-225:	N/A

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0968			13C-2,3,7,8-TCDD	69.2	40 - 135	
1,2,3,7,8-PeCDD	ND	0.102			13C-1,2,3,7,8-PeCDD	58.6	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.194			13C-1,2,3,4,7,8-HxCDD	74.4	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.200			13C-1,2,3,6,7,8-HxCDD	81.5	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.191			13C-1,2,3,4,6,7,8-HpCDD	76.9	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.168			13C-OCDD	62.3	40 - 135	
OCDD	ND	0.324			13C-2,3,7,8-TCDF	69.0	40 - 135	
2,3,7,8-TCDF	ND	0.0696			13C-1,2,3,7,8-PeCDF	62.1	40 - 135	
1,2,3,7,8-PeCDF	ND	0.181			13C-2,3,4,7,8-PeCDF	62.1	40 - 135	
2,3,4,7,8-PeCDF	ND	0.170			13C-1,2,3,4,7,8-HxCDF	80.3	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0473			13C-1,2,3,6,7,8-HxCDF	91.2	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0418			13C-2,3,4,6,7,8-HxCDF	78.8	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0519			13C-1,2,3,7,8,9-HxCDF	67.0	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0838			13C-1,2,3,4,6,7,8-HpCDF	72.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND	0.0741			13C-1,2,3,4,7,8,9-HpCDF	67.4	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.0855			13C-OCDF	61.6	40 - 135	
OCDF	ND	0.237			CRS 37Cl-2,3,7,8-TCDD	67.5	40 - 135	

Totals		Toxic Equivalent Quotient (TEQ) Data ^e	
Total TCDD	ND	TEQ (Min):	0
Total PeCDD	ND		
Total HxCDD	ND		
Total HpCDD	ND		
Total TCDF	ND		
Total PeCDF	ND		
Total HxCDF	ND		
Total HpCDF	ND		

- a. Sample specific estimated detection limit
- b. Estimated maximum possible concentration
- c. Method detection limit
- d. Lower control limit - upper control limit
- e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)

Analyst: DMS

Approved By: William J. Luksemburg 01-May-2006 08:48

Sample ID: DP-7.9-5		EPA Method 8290			
Client Data		Sample Data		Laboratory Data	
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27619-002
Project:	Ft Bragg-Site Assessment 186159	Sample Size:	9.91 g	QC Batch No.:	7960
Date Collected:	12-Apr-06	%Solids:	85.1	Date Analyzed DB-5:	26-Apr-06
Time Collected:	0915			Dates Analyzed DB-225:	26-Apr-06
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	%R LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	1.75				67.5 40 - 135
1,2,3,7,8-PeCDD	1.43	J		J	60.1 40 - 135
1,2,3,4,7,8-HxCDD	0.600	J		J	74.1 40 - 135
1,2,3,6,7,8-HxCDD	0.871	J		J	79.0 40 - 135
1,2,3,7,8,9-HxCDD	0.688	J		J	77.1 40 - 135
1,2,3,4,6,7,8-HpCDD	4.48				60.6 40 - 135
OCDD	17.0				64.3 40 - 135
2,3,7,8-TCDF	17.3				61.9 40 - 135
1,2,3,7,8-PeCDF	5.03				60.7 40 - 135
2,3,4,7,8-PeCDF	6.03				81.4 40 - 135
1,2,3,4,7,8-HxCDF	1.33	J		J	87.9 40 - 135
1,2,3,6,7,8-HxCDF	1.46	J		J	78.3 40 - 135
2,3,4,6,7,8-HxCDF	1.53	J		J	70.1 40 - 135
1,2,3,7,8,9-HxCDF	0.565	J		J	74.5 40 - 135
1,2,3,4,6,7,8-HpCDF	1.43	J		J	70.7 40 - 135
1,2,3,4,7,8,9-HpCDF	ND	0.295			61.2 40 - 135
OCDF	1.81	J		J	67.3 40 - 135
Totals					CRS 37Cl-2,3,7,8-TCDD ^e
Total TCDD	20.1		23.5		TEQ (Min): 8.95
Total PeCDD	14.4		14.8		a. Sample specific estimated detection limit.
Total HxCDD	9.33				b. Estimated maximum possible concentration.
Total HpCDD	8.38				c. Method detection limit.
Total TCDF	242				d. Lower control limit - upper control limit.
Total PeCDF	61.7		62.7		e. TEQ based on ((1997) World Health Organization Toxic Equivalent Factors (WHO))
Total HxCDF	14.4				
Total HpCDF	3.00				

Analyst: DMS

Approved By: William J. Luksemburg 01-May-2006 08:48

Sample ID: DP-7.10-2

EPA Method 8290

Client Data		Sample Data		Laboratory Data				
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27619-003			
Project:	Ft Bragg-Site Assessment 186159	Sample Size:	11.6 g	QC Batch No.:	7960			
Date Collected:	12-Apr-06	%Solids:	86.3	Date Analyzed DB-5:	26-Apr-06			
Time Collected:	1450			Dates Analyzed DB-225:	26-Apr-06			
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	0.324	J		J	13C-2,3,7,8-TCDD	67.4	40 - 135	
1,2,3,7,8-PeCDD	ND		0.251		13C-1,2,3,7,8-PeCDD	59.3	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.104			13C-1,2,3,4,7,8-HxCDD	74.0	40 - 135	
1,2,3,6,7,8-HxCDD	0.231			J	13C-1,2,3,6,7,8-HxCDD	79.8	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.100			13C-1,2,3,4,6,7,8-HpCDD	78.4	40 - 135	
1,2,3,4,6,7,8-HpCDD	1.18			J	13C-OCDD	63.3	40 - 135	
OCDD	3.83			J	13C-2,3,7,8-TCDF	68.3	40 - 135	
2,3,7,8-TCDF	2.79				13C-1,2,3,7,8-PeCDF	63.6	40 - 135	
1,2,3,7,8-PeCDF	0.952			J	13C-2,3,4,7,8-PeCDF	62.0	40 - 135	
2,3,4,7,8-PeCDF	1.03			J	13C-1,2,3,4,7,8-HxCDF	82.6	40 - 135	
1,2,3,4,7,8-HxCDF	ND		0.243		13C-1,2,3,6,7,8-HxCDF	88.2	40 - 135	
1,2,3,6,7,8-HxCDF	0.300			J	13C-2,3,4,6,7,8-HxCDF	78.7	40 - 135	
2,3,4,6,7,8-HxCDF	0.289			J	13C-1,2,3,7,8,9-HxCDF	69.7	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.179			13C-1,2,3,4,6,7,8-HpCDF	75.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.296			J	13C-1,2,3,4,7,8,9-HpCDF	71.8	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.0709			13C-OCDF	63.6	40 - 135	
OCDF	ND	0.251			CRS 37Cl-2,3,7,8-TCDD	64.9	40 - 135	
Totals								
Total TCDD	3.77				TEQ (Min):	1.26		
Total PeCDD	1.77		2.82		a. Sample specific estimated detection limit			
Total HxCDD	1.93				b. Estimated maximum possible concentration.			
Total HpCDD	1.98				c. Method detection limit			
Total TCDF	39.1		40.9		d. Lower control limit - upper control limit.			
Total PeCDF	10.6				e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HxCDF	1.59		1.99	B				
Total HpCDF	0.296							

Analyst: DMS

Approved By: William J. Luksemburg 01-May-2006 08:48

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Reviewed By: Jay

Sample Collection Dates: 4/10/06 and 4/12/06

Approved By: WJK - 7.1.06

Client: Acton Mickelson Environmental, Inc.

Completion Date: 06/28/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 27619

*Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail	Problems Identified	Support Documentation Attachments
	Check if Yes or Footnote Letter for Comments Below	Check if Yes or Footnote Number for Comments Below	Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	1.	✓
Laboratory Method Blank Results	✓	3.	✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓	2.	✓
Verification of the EDD in XLS Format	✓		✓

Comments: 1. Temperature at 0.2°C upon receipt to ^{sub}contract laboratory (versus 4±2°C in method) The samples were in clear jars versus amber jars as per method. No qualification warranted for either temperature or container.

2. All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) and flagged "L"

3. See Blank Analysis Results page (Acceptable with discussion)

Curtis & Tompkins SDG: 186159

Method Blank		EPA Method 8290						
Matrix:	Soil	QC Batch No.:	7960	Lab Sample:	0-MB001			
Sample Size:	10.0 g	Date Extracted:	22-Apr-06	Date Analyzed DB-5:	25-Apr-06			
				Date Analyzed DB-225:	NA			
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0940			IS 13C-2,3,7,8-TCDD	54.4	40 - 135	
1,2,3,7,8-PeCDD	ND	0.153			13C-1,2,3,7,8-PeCDD	49.6	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.167			13C-1,2,3,4,7,8-HxCDD	67.5	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.167			13C-1,2,3,6,7,8-HxCDD	71.3	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.162			13C-1,2,3,4,6,7,8-HpCDD	62.9	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.218			13C-OCDD	47.2	40 - 135	
OCDD	ND	0.716			13C-2,3,7,8-TCDF	53.8	40 - 135	
2,3,7,8-TCDF	ND	0.0997			13C-1,2,3,7,8-PeCDF	50.6	40 - 135	
1,2,3,7,8-PeCDF	ND	0.251			13C-2,3,4,7,8-PeCDF	52.7	40 - 135	
2,3,4,7,8-PeCDF	ND	0.237			13C-1,2,3,4,7,8-HxCDF	70.5	40 - 135	
1,2,3,4,7,8-HxCDF	ND		0.0673		13C-1,2,3,6,7,8-HxCDF	78.8	40 - 135	
1,2,3,6,7,8-HxCDF	ND		0.0799		13C-2,3,4,6,7,8-HxCDF	70.7	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0477			13C-1,2,3,7,8,9-HxCDF	58.0	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0846			13C-1,2,3,4,6,7,8-HpCDF	58.8	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND	0.217			13C-1,2,3,4,7,8,9-HpCDF	52.8	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.184			13C-OCDF	46.2	40 - 135	
OCDF	ND	0.393			CRS 37Cl-2,3,7,8-TCDD	64.7	40 - 135	
Toxic Equivalent Quotient (TEQ) Data^e								
Total TCDD	ND	0.0940			TEQ (Min):	0		
Total PeCDD	ND	0.153			a. Sample specific estimated detection limit.			
Total HxCDD	ND	0.165			b. Estimated maximum possible concentration.			
Total HpCDD	ND	0.218			c. Method detection limit			
Total TCDF	ND	0.0997			d. Lower control limit - upper control limit			
Total PeCDF	ND	0.244			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HxCDF	0.111		0.259					
Total HpCDF	ND	0.237						

Analyst: JMH

Approved By: William J. Luksemburg 01-May-2006 08:48

OPR Results

EPA Method 8290

Matrix: Soil	QC Batch No.: 7960	Lab Sample: 0-OPR001			
Sample Size: 10.0 g	Date Extracted: 22-Apr-06	Date Analyzed DB-5: 25-Apr-06			
		Date Analyzed DB-225: NA			
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	7 - 13	IS 13C-2,3,7,8-TCDD	63.9	40 - 135
1,2,3,7,8-PeCDD	50.0	35 - 65	13C-1,2,3,7,8-PeCDD	53.5	40 - 135
1,2,3,4,7,8-HxCDD	50.0	35 - 65	13C-1,2,3,4,7,8-HxCDD	77.5	40 - 135
1,2,3,6,7,8-HxCDD	50.0	35 - 65	13C-1,2,3,6,7,8-HxCDD	81.4	40 - 135
1,2,3,7,8,9-HxCDD	50.0	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	74.6	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	35 - 65	13C-OCDD	46.8	40 - 135
OCDD	100	70 - 130	13C-2,3,7,8-TCDF	64.3	40 - 135
2,3,7,8-TCDF	10.0	7 - 13	13C-1,2,3,7,8-PeCDF	57.5	40 - 135
1,2,3,7,8-PeCDF	50.0	35 - 65	13C-2,3,4,7,8-PeCDF	57.7	40 - 135
2,3,4,7,8-PeCDF	50.0	35 - 65	13C-1,2,3,4,7,8-HxCDF	80.9	40 - 135
1,2,3,4,7,8-HxCDF	50.0	35 - 65	13C-1,2,3,6,7,8-HxCDF	91.2	40 - 135
1,2,3,6,7,8-HxCDF	50.0	35 - 65	13C-2,3,4,6,7,8-HxCDF	80.9	40 - 135
2,3,4,6,7,8-HxCDF	50.0	35 - 65	13C-1,2,3,7,8,9-HxCDF	71.4	40 - 135
1,2,3,7,8,9-HxCDF	50.0	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	72.5	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	77.3	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	35 - 65	13C-OCDF	52.6	40 - 135
OCDF	100	70 - 130	CRS 37Cl-2,3,7,8-TCDD	64.0	40 - 135

Analyst: JMH

Approved By:

William J. Luksemburg 01-May-2006 08:48

WJL

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 02, 2006

Alta Project I.D.: 27619

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the three soil samples received at Alta Analytical Laboratory on April 20, 2006 under your Project Name "Ft Bragg-Site Assessment 186159". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the results herein meet all the requirements set forth by NELAP for those applicable test methods. This report should not be reproduced or put in full without the written approval of ALTA.



Section I: Sample Inventory Report

Date Received: 4/20/2006

<u>Alta Lab. ID</u>	<u>Client Sample ID</u>
27619-001	DP-7.16-10
27619-002	DP-7.9-5
27619-003	DP-7.10-2

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900
(510) 486-0532

27619

0.2°C

Project Number: 186159
Site: Ft Bragg-Site Assessment

Subcontract Laboratory:
Alta Analytical Lab, Inc.
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 933-1640
ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker

*** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
DP-7.16-10	04/10 10:00	Soil	8290	186159-001	
DP-7.9-5	04/12 09:15	Soil	8290	186159-002	
DP-7.10-2	04/12 14:50	Soil	8290	186159-005	

Please provide an EDD 4/19/06 LB

Notes:	Relinquished By:	Received By:
	<i>for news</i>	<i>Stittman J. Benedict</i>
	Date/Time: 4/19/06 1416	Date/Time: 04/20/06 0905

Signature on this form constitutes a firm Purchase Order for the services requested above.

SAMPLE LOG-IN CHECKLIST

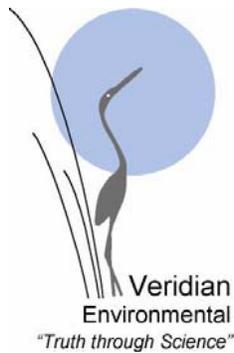
Alta Project #: 27619

Samples Arrival:	Date/Time 4/20/06 0905	Initials: BSB	Location: WR-2	
			Shelf/Rack: _____	
Logged In:	Date/Time 4/21/06 0715	Initials: CBB	Location: WR-2	
			Shelf/Rack: D-3	
Delivered By:	FedEx	UPS	<input checked="" type="checkbox"/> Cal	DHL
			Hand Delivered	Other
Preservation:	<input checked="" type="checkbox"/> Ice	<input type="checkbox"/> Blue Ice	<input type="checkbox"/> Dry Ice	<input type="checkbox"/> None
Temp °C	0.2	Time:	0915	Thermometer ID: DT-20

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill	✓		
Trk #	C 10129000026090		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓
Na ₂ S ₂ O ₃ Preservation Documented?		COC	Sample Container <input checked="" type="radio"/> None
Shipping Container	Alta <input checked="" type="radio"/> Client	Retain	<input checked="" type="radio"/> Return <input type="radio"/> Dispose

Comments:

sample containers are clear jars



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT
Georgia-Pacific
California Wood Products
Manufacturing Facility

Laboratory Project IDs

- *Alta Analytical Laboratory, Inc.*
#27644
- *Curtis & Tompkins, Ltd.*
#186298

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on two soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-5.61-10	27644-001	27644	04/19/06	D
Soil	DP-5.61-20	27644-002	27644	04/19/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data

end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results			✓	
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			✓	
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The samples were received in clear jars as opposed to amber jars as required by the method. This exception does not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at a trace level in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. A reported positive result has been qualified as qualitatively questionable (U) on the qualified analytical result forms. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	<u>Concentration</u>
OCDD	1.93 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J” on the qualified analytical result forms.

According to the laboratory, the concentrations of the following analytes in the samples listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers.

<u>Sample</u>	<u>Analyte</u>
DP-5.61-10	Total TCDF, Total PeCDF, 1,2,3,6,7,8-HxCDF, and Total HxCDF

It should be noted that sample DP-5.61-10 displayed low percent solids (41%). The data were not qualified on this basis.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

Sample ID(s)	SDG	Compound(s)	DV Qualifier	Reason(s)
DP-5.61-20	27644	OCDD	U	Positive result for analyte in laboratory method blank

In addition, all results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J”.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified minor aspects of the analytical data that required qualification due to laboratory method blank contamination, and results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin

<u>Acronym</u>	<u>Definition</u>
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:



Tracy A. Young
Quality Assurance Chemist

Report Reviewed and Approved By:



William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: **DP-5.61-10**

EPA Method **8290**

Client Data

Name: Curtis & Tompkins, Ltd.
 Project: Ft Bragg-Site Assessment 186298
 Date Collected: 19-Apr-06
 Time Collected: 1005

Sample Data

Matrix: Soil
 Sample Size: 19.7 g
 %Solids: 41.0

Laboratory Data

Lab Sample: 27644-001 Date Received: 2-May-06
 QC Batch No. 7989 Date Extracted: 4-May-06
 Date Analyzed DB-5: 5-May-06 Dates Analyzed DB-225: 8-May-06

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	3.09				IS 13C-2,3,7,8-TCDD	65.7	40 - 135	
1,2,3,7,8-PeCDD	8.46				13C-1,2,3,7,8-PeCDD	68.4	40 - 135	
1,2,3,4,7,8-HxCDD	4.24				13C-1,2,3,4,7,8-HxCDD	75.9	40 - 135	
1,2,3,6,7,8-HxCDD	18.1				13C-1,2,3,6,7,8-HxCDD	77.2	40 - 135	
1,2,3,7,8,9-HxCDD	10.6				13C-1,2,3,4,6,7,8-HpCDD	71.1	40 - 135	
1,2,3,4,6,7,8-HpCDD	132				13C-OCDD	48.1	40 - 135	
OCDD	498			B	13C-2,3,7,8-TCDF	76.4	40 - 135	
2,3,7,8-TCDF	10.9				13C-1,2,3,7,8-PeCDF	74.2	40 - 135	
1,2,3,7,8-PeCDF	7.52				13C-2,3,4,7,8-PeCDF	75.4	40 - 135	
2,3,4,7,8-PeCDF	315				13C-1,2,3,4,7,8-HxCDF	69.5	40 - 135	
1,2,3,4,7,8-HxCDF	19.4				13C-1,2,3,6,7,8-HxCDF	63.4	40 - 135	
1,2,3,6,7,8-HxCDF	53.2			D	13C-2,3,4,6,7,8-HxCDF	71.2	40 - 135	
2,3,4,6,7,8-HxCDF	122				13C-1,2,3,7,8,9-HxCDF	77.0	40 - 135	
1,2,3,7,8,9-HxCDF	15.8				13C-1,2,3,4,6,7,8-HpCDF	72.3	40 - 135	
1,2,3,4,6,7,8-HpCDF	60.8				13C-1,2,3,4,7,8,9-HpCDF	72.9	40 - 135	
1,2,3,4,7,8,9-HpCDF	5.79				13C-OCDF	50.7	40 - 135	
OCDF	55.8				CRS 37Cl-2,3,7,8-TCDD	72.4	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data^e			
Total TCDD	56.6				TEQ (Min):	197		
Total PeCDD	119				a. Sample specific estimated detection limit.			
Total HxCDD	223				b. Estimated maximum possible concentration			
Total HpCDD	265			D	c. Method detection limit.			
Total TCDF	1760			D	d. Lower control limit - upper control limit.			
Total PeCDF	4180			D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HxCDF	1580			D				
Total HpCDF	157							

Analyst: JMH

Approved By: Martha M. Maier 11-May-2006 10:53

Sample ID: **DP-5.61-20**

EPA Method 8290

Client Data		Sample Data		Laboratory Data	
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27644-002
Project:	Ft Bragg-Site Assessment 186298	Sample Size:	11.5 g	QC Batch No.:	7989
Date Collected:	19-Apr-06	%Solids:	87.4	Date Analyzed DB-5:	5-May-06
Time Collected:	1003			Date Analyzed DB-225:	NA

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0243			13C-2,3,7,8-TCDD	78.6	40 - 135	
1,2,3,7,8-PeCDD	ND	0.0376			13C-1,2,3,7,8-PeCDD	83.6	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.0419			13C-1,2,3,4,7,8-HxCDD	72.8	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.0413			13C-1,2,3,6,7,8-HxCDD	78.6	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.0419			13C-1,2,3,4,6,7,8-HpCDD	83.7	40 - 135	
1,2,3,4,6,7,8-HpCDD	0.237			J	13C-OCDD	59.2	40 - 135	
OCDD	1.56			J,B	13C-2,3,7,8-TCDF	83.4	40 - 135	
2,3,7,8-TCDF	ND	0.0349			13C-1,2,3,7,8-PeCDF	87.5	40 - 135	
1,2,3,7,8-PeCDF	ND	0.0307			13C-2,3,4,7,8-PeCDF	88.2	40 - 135	
2,3,4,7,8-PeCDF	ND	0.0283			13C-1,2,3,4,7,8-HxCDF	68.5	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0216			13C-1,2,3,6,7,8-HxCDF	64.2	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0204			13C-2,3,4,6,7,8-HxCDF	73.8	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0217			13C-1,2,3,7,8,9-HxCDF	77.7	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0317			13C-1,2,3,4,6,7,8-HpCDF	73.6	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.0476			J	13C-1,2,3,4,7,8,9-HpCDF	86.4	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.0237			13C-OCDF	66.2	40 - 135	
OCDF	ND	0.0459			CRS 37Cl-2,3,7,8-TCDD	79.7	40 - 135	

Totals		Toxic Equivalent Quotient (TEQ) Data ^e	
Total TCDD	ND	TEQ (Min):	0.00300
Total PeCDD	ND		
Total HxCDD	0.147		
Total HpCDD	0.410		
Total TCDF	ND		
Total PeCDF	0.159		
Total HxCDF	0.166		
Total HpCDF	0.0923		

- a. Sample specific estimated detection limit.
- b. Estimated maximum possible concentration.
- c. Method detection limit.
- d. Lower control limit - upper control limit.
- e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)

Analyst: JMH

Approved By: Martha M. Maier 11-May-2006 10:53

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Reviewed By: Jay

Sample Collection Dates: 4/19/06

Approved By: W6K-7-11-06

Client: Acton Mickelson Environmental, Inc.

Completion Date: 6/28/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 27644
 *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail	Problems Identified	Support Documentation Attachments
	Check if Yes or Footnote Letter for Comments Below	Check if Yes or Footnote Number for Comments Below	Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	1.	✓
Laboratory Method Blank Results	✓	2.	✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓	3.	✓
Verification of the EDD in XLS Format	✓		✓

Comments: 1. The samples were in clear glass jar upon receipt to the subcontract laboratory versus amber jar as stated in the method. No qualification warranted.
2. See blank Analysis Results page
3. A low %Solid was noted for sample DP-5-61-10.
All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors & sample sizes) estimated & flagged 'J'.
Possible chlorinated diphenylether interference noted in the 7 more compounds of sample DP-5-61-10.

Curtis & Tompkins SDG: 186298

Veridian Environmental, Inc.

Method Blank **EPA Method 8290**

Matrix: Soil	QC Batch No.: 7989	Lab Sample: 0-MB001	Date Analyzed DB-5: 5-May-06	Date Analyzed DB-225: NA
Sample Size: 10.0 g	Date Extracted: 4-May-06			
Analyte	Conc. (pg/g)	DL^a	EMPC^b	Qualifiers
2,3,7,8-TCDD	ND	0.0446		
1,2,3,7,8-PeCDD	ND	0.0451		
1,2,3,4,7,8-HxCDD	ND	0.0830		
1,2,3,6,7,8-HxCDD	ND	0.0830		
1,2,3,7,8,9-HxCDD	ND	0.0838		
1,2,3,4,6,7,8-HpCDD	ND	0.129		
OCDD	1.93			
2,3,7,8-TCDF	ND	0.0408		J
1,2,3,7,8-PeCDF	ND	0.0496		
2,3,4,7,8-PeCDF	ND	0.0475		
1,2,3,4,7,8-HxCDF	ND	0.0590		
1,2,3,6,7,8-HxCDF	ND	0.0535		
2,3,4,6,7,8-HxCDF	ND	0.0608		
1,2,3,7,8,9-HxCDF	ND	0.0970		
1,2,3,4,6,7,8-HpCDF	ND	0.222		
1,2,3,4,7,8,9-HpCDF	ND	0.233		
OCDF	ND	0.196		
Totals				
Total TCDD	ND	0.0446		
Total PeCDD	ND	0.0451		
Total HxCDD	ND	0.0833		
Total HpCDD	ND	0.129		
Total TCDF	ND	0.0408		
Total PeCDF	ND	0.0486		
Total HxCDF	ND	0.0676		
Total HpCDF	ND	0.228		
Toxic Equivalent Quotient (TEQ) Data^e				
TEQ (Min):	0.000193			
a. Sample specific estimated detection limit.				
b. Estimated maximum possible concentration.				
c. Method detection limit.				
d. Lower control limit - upper control limit.				
e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)				

Analyst: JMH

Approved By: Martha M. Maier 11-May-2006 10:53

EPA Method 8290

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-5: 5-May-06		Date Analyzed DB-225: NA	
Matrix:	Soil <th>QC Batch No.:</th> <td>7989 <th>Lab Sample:</th> <td>0-OPR001 <th>Date Analyzed DB-5:</th> <td>5-May-06 </td></td></td>	QC Batch No.:	7989 <th>Lab Sample:</th> <td>0-OPR001 <th>Date Analyzed DB-5:</th> <td>5-May-06 </td></td>	Lab Sample:	0-OPR001 <th>Date Analyzed DB-5:</th> <td>5-May-06 </td>	Date Analyzed DB-5:	5-May-06
Sample Size:	10.0 g <th>Date Extracted:</th> <td>4-May-06 <th>Date Analyzed DB-225:</th> <td>NA <th colspan="2"></th> </td></td>	Date Extracted:	4-May-06 <th>Date Analyzed DB-225:</th> <td>NA <th colspan="2"></th> </td>	Date Analyzed DB-225:	NA <th colspan="2"></th>		
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	10.9	7 - 13	<u>IS</u> 13C-2,3,7,8-TCDD	75.2	40 - 135	
1,2,3,7,8-PeCDD	50.0	51.9	35 - 65	13C-1,2,3,7,8-PeCDD	78.2	40 - 135	
1,2,3,4,7,8-HxCDD	50.0	52.2	35 - 65	13C-1,2,3,4,7,8-HxCDD	73.4	40 - 135	
1,2,3,6,7,8-HxCDD	50.0	52.4	35 - 65	13C-1,2,3,6,7,8-HxCDD	78.9	40 - 135	
1,2,3,7,8,9-HxCDD	50.0	52.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	66.8	40 - 135	
1,2,3,4,6,7,8-HpCDD	50.0	52.3	35 - 65	13C-OCDD	41.5	40 - 135	
OCDD	100	106	70 - 130	13C-2,3,7,8-TCDF	85.4	40 - 135	
2,3,7,8-TCDF	10.0	10.2	7 - 13	13C-1,2,3,7,8-PeCDF	77.9	40 - 135	
1,2,3,7,8-PeCDF	50.0	52.6	35 - 65	13C-2,3,4,7,8-PeCDF	77.1	40 - 135	
2,3,4,7,8-PeCDF	50.0	51.9	35 - 65	13C-1,2,3,4,7,8-HxCDF	75.8	40 - 135	
1,2,3,4,7,8-HxCDF	50.0	52.0	35 - 65	13C-1,2,3,6,7,8-HxCDF	73.0	40 - 135	
1,2,3,6,7,8-HxCDF	50.0	52.0	35 - 65	13C-2,3,4,6,7,8-HxCDF	77.7	40 - 135	
2,3,4,6,7,8-HxCDF	50.0	51.5	35 - 65	13C-1,2,3,7,8,9-HxCDF	65.9	40 - 135	
1,2,3,7,8,9-HxCDF	50.0	52.6	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	65.3	40 - 135	
1,2,3,4,6,7,8-HpCDF	50.0	52.2	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	64.3	40 - 135	
1,2,3,4,7,8,9-HpCDF	50.0	52.8	35 - 65	13C-OCDF	44.1	40 - 135	
OCDF	100	104	70 - 130	<u>CRS</u> 37Cl-2,3,7,8-TCDD	80.7	40 - 135	

Analyst: JMH

Approved By: Martha M. Maier 11-May-2006 10:53

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 11, 2006

Alta Project I.D.: 27644

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the two soil samples received at Alta Analytical Laboratory on May 02, 2006 under your Project Name "Ft Bragg-Site Assessment 186298". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable to its method. This report should not be reproduced except in full and only with the written approval of ALTA.



Section I: Sample Inventory Report

Date Received: 5/2/2006

Alta Lab. ID

Client Sample ID

27644-001

DP-5.61-10

27644-002

DP-5.61-20

27644 2.9°C

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900
(510) 486-0532

Project Number: 186298
Site: Ft Bragg-Site Assessment

Subcontract Laboratory:
Alta Analytical Lab, Inc.
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 933-1640
ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker
*** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
DP-5.61-10	04/19 10:05	Soil	8290	186298-001	
DP-5.61-20	04/19 10:30	Soil	8290	186298-003	

Notes:	Relinquished By:	Received By:
	<i>[Signature]</i>	<i>Bettina J. Benedict</i>
	Date/Time: 5-1-06/1700	Date/Time: 5/1/06 0957

signature on this form constitutes a firm Purchase Order for the services requested above.

SAMPLE LOG-IN CHECKLIST

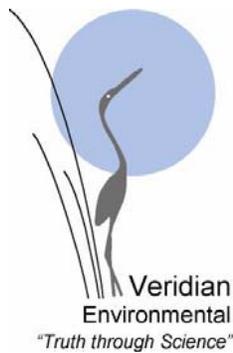
Alta Project #: 27644

Samples Arrival:	Date/Time 5/2/06 0957	Initials: VBB	Location: WR-2 Shelf/Rack: _____			
Logged In:	Date/Time 5/2/06 1344	Initials: FEB	Location: WR-2 Shelf/Rack: A-3			
Delivered By:	FedEx	UPS	<u>Cal</u>	DHL	Hand Delivered	Other
Preservation:	<u>Ice</u>	Blue Ice	Dry Ice	None		
Temp °C	2.9°C	Time:	1015	Thermometer ID: DT-20		

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill	✓		
Trk #	C10129000026462		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓
Na ₂ S ₂ O ₃ Preservation Documented?		COC	Sample Container
Shipping Container	Alta	<u>Client</u>	Retain
			<u>Return</u>
			Dispose

Comments:

Samples received in clear glass jars



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT

***Georgia-Pacific
California Wood Products
Manufacturing Facility***

Laboratory Project IDs

- *Alta Analytical Laboratory, Inc.
#27618*
- *Curtis & Tompkins, Ltd.
#186191*

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on two soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-7.18-5	27618-001	27618	04/13/06	D
Soil	DP-7.17-5	27618-002	27618	04/13/06	D

Note:

- D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data

end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letters and Chain-of-Custody Records are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results			✓	
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification of Target Compounds			✓	
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.2°C) of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of 4 ± 2°C. In addition, the samples were received in clear jars as opposed to amber jars as required by the method. These exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Reported positive results have been qualified as biased high (J+) on the associated qualified analytical results forms, where warranted. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	<u>Concentration</u>
Total HxCDF	0.111 pg/g

Identification of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J” on the qualified analytical result forms.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

Sample ID(s)	SDG	Compound(s)	DV Qualifier	Reason(s)
DP-7.17-5	27618	Total HxCDF	J+	Positive result for congener in laboratory method blank

In addition, all results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J”.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.

DV Qualifier	Definition
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified minor aspects of the analytical data that required qualification due to laboratory method blank contamination and results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

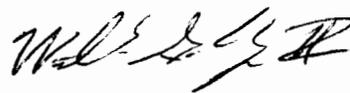
7.0 Signatures

Report Prepared By:



Ellen E. Seeley
Quality Assurance Chemist

Report Reviewed and Approved By:



William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP-7.18-5

EPA Method 8290

Client Data		Sample Data		Laboratory Data	
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27618-001
Project:	Ft Bragg-Site Assessment 186191	Sample Size:	11.8 g	QC Batch No.:	7960
Date Collected:	13-Apr-06	%Solids:	86.3	Date Analyzed DB-5:	26-Apr-06
Time Collected:	0840			Dates Analyzed DB-225:	20-Apr-06 22-Apr-06 26-Apr-06

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	0.220			J	13C-2,3,7,8-TCDD	67.4	40 - 135	
1,2,3,7,8-PeCDD	0.462			J	13C-1,2,3,7,8-PeCDD	58.3	40 - 135	
1,2,3,4,7,8-HxCDD	0.338			J	13C-1,2,3,4,7,8-HxCDD	74.2	40 - 135	
1,2,3,6,7,8-HxCDD	0.479			J	13C-1,2,3,6,7,8-HxCDD	77.2	40 - 135	
1,2,3,7,8,9-HxCDD	ND		0.446		13C-1,2,3,4,6,7,8-HpCDD	65.4	40 - 135	
1,2,3,4,6,7,8-HpCDD	1.95			J	13C-OCDD	51.7	40 - 135	
OCDD	3.67			J	13C-2,3,7,8-TCDF	66.6	40 - 135	
2,3,7,8-TCDF	1.65				13C-1,2,3,7,8-PeCDF	61.3	40 - 135	
1,2,3,7,8-PeCDF	0.841			J	13C-2,3,4,7,8-PeCDF	60.7	40 - 135	
2,3,4,7,8-PeCDF	1.18			J	13C-1,2,3,4,7,8-HxCDF	77.1	40 - 135	
1,2,3,4,7,8-HxCDF	0.450			J	13C-1,2,3,6,7,8-HxCDF	79.7	40 - 135	
1,2,3,6,7,8-HxCDF	0.424			J	13C-2,3,4,6,7,8-HxCDF	78.1	40 - 135	
2,3,4,6,7,8-HxCDF	0.494			J	13C-1,2,3,7,8,9-HxCDF	66.4	40 - 135	
1,2,3,7,8,9-HxCDF	0.281			J	13C-1,2,3,4,6,7,8-HpCDF	64.0	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.599	0.0838		J	13C-1,2,3,4,7,8,9-HpCDF	54.3	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND				13C-OCDF	50.1	40 - 135	
OCDF	ND	0.272			CRS 37Cl-2,3,7,8-TCDD	67.0	40 - 135	

Totals		Toxic Equivalent Quotient (TEQ) Data ^e	
Total TCDD	5.83	TEQ (Min):	1.75
Total PeCDD	4.97		
Total HxCDD	5.69		
Total HpCDD	3.52		
Total TCDF	28.6		
Total PeCDF	8.93		
Total HxCDF	3.72		
Total HpCDF	0.844		

- a. Sample specific estimated detection limit.
- b. Estimated maximum possible concentration.
- c. Method detection limit.
- d. Lower control limit - upper control limit.
- e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)

Analyst: DMS
 Approved By: William J. Luksemburg 01-May-2006 08:23

EPA Method 8290

Sample ID: DP-7.17-5

EPA Method 8290

Client Data		Sample Data		Laboratory Data	
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27618-002
Project:	Ft Bragg-Site Assessment 186191	Sample Size:	10.9 g	QC Batch No.:	7960
Date Collected:	13-Apr-06	%Solids:	90.4	Date Analyzed DB-5:	26-Apr-06
Time Collected:	0935			Date Analyzed DB-225:	NA

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.118			IS 13C-2,3,7,8-TCDD	56.1	40 - 135	
1,2,3,7,8-PeCDD	ND	0.147			13C-1,2,3,7,8-PeCDD	50.2	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.225			13C-1,2,3,4,7,8-HxCDD	65.4	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.244			13C-1,2,3,6,7,8-HxCDD	67.8	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.227			13C-1,2,3,4,6,7,8-HpCDD	61.0	40 - 135	
1,2,3,4,6,7,8-HpCDD	0.410			J	13C-OCDD	48.5	40 - 135	
OCDD	1.66			J	13C-2,3,7,8-TCDF	57.6	40 - 135	
2,3,7,8-TCDF	ND	0.206			13C-1,2,3,7,8-PeCDF	54.0	40 - 135	
1,2,3,7,8-PeCDF	ND	0.287			13C-2,3,4,7,8-PeCDF	53.5	40 - 135	
2,3,4,7,8-PeCDF	ND	0.292			13C-1,2,3,4,7,8-HxCDF	68.3	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0725			13C-1,2,3,6,7,8-HxCDF	72.1	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0630			13C-2,3,4,6,7,8-HxCDF	69.0	40 - 135	
2,3,4,6,7,8-HxCDF	0.125			J	13C-1,2,3,7,8,9-HxCDF	58.9	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0995			13C-1,2,3,4,6,7,8-HpCDF	58.3	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.272			J	13C-1,2,3,4,7,8,9-HpCDF	49.5	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.192			13C-OCDF	45.4	40 - 135	
OCDF	0.610			J	CRS 37Cl-2,3,7,8-TCDD	67.8	40 - 135	

Toxic Equivalent Quotient (TEQ) Data ^e	
TEQ (Min):	0.0195
a. Sample specific estimated detection limit. b. Estimated maximum possible concentration. c. Method detection limit. d. Lower control limit - upper control limit. e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	
Total TCDD	0.118
Total PeCDD	0.147
Total HxCDD	0.232
Total HpCDD	0.773
Total TCDF	0.177
Total PeCDF	0.290
Total HxCDF	0.284
Total HpCDF	0.272

Analyst: DMS
 Approved By: William J. Luksemburg 01-May-2006 08:23

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment
 Sample Collection Dates: 4/13/06
 Client: Acton Mickelson Environmental, Inc.
 Project Manager: Jeff Heglie
 Laboratory: Alta Analytical Laboratory, Inc.

Reviewed By: Ellen E. Insley
 Approved By: WGK
 Completion Date: 7/10/06

Deliverables: Level II

SDG: 27618
 *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	(1)	✓
Laboratory Method Blank Results	✓	(2)	✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification of Target Compounds	✓	(3)	✓
Verification of the EDD in XLS Format	✓		✓

Comments:

- (1) Samples were received at the laboratory at a temperature outside the acceptable range of $4 \pm 2^\circ\text{C}$. Also, the samples were stored in clear glass jars instead of the method-specified amber jars.
- (2) The method blank showed a trace concentration of mon-2,3,7,8 isomer of HxCDF, indicating a high bias.
- (3) Sample concentrations were found that lay below the instrument calibration range.

Curtis & Tompkins SDG: 186191

Method Blank				EPA Method 8290			
Matrix:	Soil	QC Batch No.:	7960	Lab Sample:	0-MB001	Date Analyzed DB-5:	25-Apr-06
Sample Size:	10.0 g	Date Extracted:	22-Apr-06	Date Analyzed DB-225:	NA		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.0940			IS 13C-2,3,7,8-TCDD	54.4	40 - 135
1,2,3,7,8-PeCDD	ND	0.153			13C-1,2,3,7,8-PeCDD	49.6	40 - 135
1,2,3,4,7,8-HxCDD	ND	0.167			13C-1,2,3,4,7,8-HxCDD	67.5	40 - 135
1,2,3,6,7,8-HxCDD	ND	0.167			13C-1,2,3,6,7,8-HxCDD	71.3	40 - 135
1,2,3,7,8,9-HxCDD	ND	0.162			13C-1,2,3,4,6,7,8-HpCDD	62.9	40 - 135
1,2,3,4,6,7,8-HpCDD	ND	0.218			13C-OCDD	47.2	40 - 135
OCDD	ND	0.716			13C-2,3,7,8-TCDF	53.8	40 - 135
2,3,7,8-TCDF	ND	0.0997			13C-1,2,3,7,8-PeCDF	50.6	40 - 135
1,2,3,7,8-PeCDF	ND	0.251			13C-2,3,4,7,8-PeCDF	52.7	40 - 135
2,3,4,7,8-PeCDF	ND	0.237			13C-1,2,3,4,7,8-HxCDF	70.5	40 - 135
1,2,3,4,7,8-HxCDF	ND		0.0673		13C-1,2,3,6,7,8-HxCDF	78.8	40 - 135
1,2,3,6,7,8-HxCDF	ND		0.0799		13C-2,3,4,6,7,8-HxCDF	70.7	40 - 135
2,3,4,6,7,8-HxCDF	ND	0.0477			13C-1,2,3,7,8,9-HxCDF	58.0	40 - 135
1,2,3,7,8,9-HxCDF	ND	0.0846			13C-1,2,3,4,6,7,8-HpCDF	58.8	40 - 135
1,2,3,4,6,7,8-HpCDF	ND	0.217			13C-1,2,3,4,7,8,9-HpCDF	52.8	40 - 135
1,2,3,4,7,8,9-HpCDF	ND	0.184			13C-OCDF	46.2	40 - 135
OCDF	ND	0.393			CRS 37Cl-2,3,7,8-TCDD	64.7	40 - 135
Totals					Toxic Equivalent Quotient (TEQ) Data ^e		
Total TCDD	ND	0.0940			TEQ (Min):	0	
Total PeCDD	ND	0.153			a. Sample specific estimated detection limit.		
Total HxCDD	ND	0.165			b. Estimated maximum possible concentration.		
Total HpCDD	ND	0.218			c. Method detection limit.		
Total TCDF	ND	0.0997			d. Lower control limit - upper control limit.		
Total PeCDF	ND	0.244			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)		
Total HxCDF	0.111		0.259				
Total HpCDF	ND	0.237					

Analyst: JMH

Approved By:

William J. Luksemburg 01-May-2006 08:23

EPA Method 8290

OPR Results

Matrix: Soil	QC Batch No.: 7960	Lab Sample: 0-OPR001	Date Analyzed DB-5: 25-Apr-06	Date Analyzed DB-22.5: NA		
Sample Size: 10.0 g	Date Extracted: 22-Apr-06					
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	9.98	7 - 13	<u>IS</u> 13C-2,3,7,8-TCDD	63.9	40 - 135
1,2,3,7,8-PeCDD	50.0	53.0	35 - 65	13C-1,2,3,7,8-PeCDD	53.5	40 - 135
1,2,3,4,7,8-HxCDD	50.0	50.0	35 - 65	13C-1,2,3,4,7,8-HxCDD	77.5	40 - 135
1,2,3,6,7,8-HxCDD	50.0	50.8	35 - 65	13C-1,2,3,6,7,8-HxCDD	81.4	40 - 135
1,2,3,7,8,9-HxCDD	50.0	47.4	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	74.6	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	51.6	35 - 65	13C-OCDD	46.8	40 - 135
OCDD	100	100	70 - 130	13C-2,3,7,8-TCDF	64.3	40 - 135
2,3,7,8-TCDF	10.0	9.89	7 - 13	13C-1,2,3,7,8-PeCDF	57.5	40 - 135
1,2,3,7,8-PeCDF	50.0	48.7	35 - 65	13C-2,3,4,7,8-PeCDF	57.7	40 - 135
2,3,4,7,8-PeCDF	50.0	50.2	35 - 65	13C-1,2,3,4,7,8-HxCDF	80.9	40 - 135
1,2,3,4,7,8-HxCDF	50.0	52.3	35 - 65	13C-1,2,3,6,7,8-HxCDF	91.2	40 - 135
1,2,3,6,7,8-HxCDF	50.0	50.9	35 - 65	13C-2,3,4,6,7,8-HxCDF	80.9	40 - 135
2,3,4,6,7,8-HxCDF	50.0	50.3	35 - 65	13C-1,2,3,7,8,9-HxCDF	71.4	40 - 135
1,2,3,7,8,9-HxCDF	50.0	51.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	72.5	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	49.6	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	77.3	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	49.5	35 - 65	13C-OCDF	52.6	40 - 135
OCDF	100	94.5	70 - 130	<u>CRS</u> 37Cl-2,3,7,8-TCDD	64.0	40 - 135

Analyst: JMH

Approved By: William J. Luksemburg 01-May-2006 08:23

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 02, 2006

Alta Project I.D.: 27618

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the two soil samples received at Alta Analytical Laboratory on April 20, 2006 under your Project Name "Ft Bragg-Site Assessment 186191". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. This report should not be reproduced except in full without the written approval of A.L.L.



Section I: Sample Inventory Report

Date Received: 4/20/2006

<u>Alta Lab. ID</u>	<u>Client Sample ID</u>
27618-001	DP-7.18-5
27618-002	DP-7.17-5

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900
(510) 486-0532

27618
0.2°C

Project Number: 186191
Site: Ft Bragg-Site Assessment

Subcontract Laboratory:
Alta Analytical Lab, Inc.
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 933-1640
ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker
*** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
DP-7.18-5	04/13 08:40	Soil	8290	186191-001	
DP-7.17-5	04/13 09:35	Soil	8290	186191-003	

please provide an EDD 4/19/06 B

Notes:	Relinquished By:	Received By:
	<i>Amelie</i>	<i>Bethina P. Benedict</i>
	Date/Time:	Date/Time:
	4/19/06 14/6	4/20/06 0905

Signature on this form constitutes a firm Purchase Order for the services requested above.

SAMPLE LOG-IN CHECKLIST

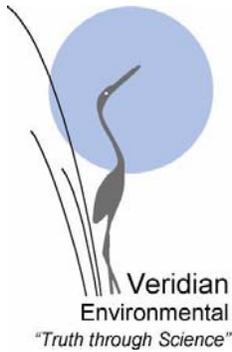
Alta Project #: 27618

Samples Arrival:	Date/Time 4/20/06 0905	Initials: BSB	Location: WR-2
			Shelf/Rack: _____
Logged In:	Date/Time 4/21/06 0704	Initials: CBB	Location: WR-2
			Shelf/Rack: D-3
Delivered By:	FedEx	UPS	Cal
			DHL
			Hand Delivered
			Other
Preservation:	Ice	Blue Ice	Dry Ice
			None
Temp °C	0.2	Time: 0915	Thermometer ID: DT-20

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill	✓		
Trk #	C 10129000026090		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓
Na ₂ S ₂ O ₃ Preservation Documented?			None
Shipping Container	Alta	Client	Retain
			Return
			Dispose

Comments:

Samples containers are clear jars



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT

**Georgia-Pacific
California Wood Products
Manufacturing Facility**

Laboratory Project IDs

- *Alta Analytical Laboratory, Inc.
#27643*
- *Curtis & Tompkins, Ltd.
#186277*

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on three soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-4.12-13	27643-001	27643	04/18/06	D
Soil	DP-4.13-6	27643-002	27643	04/18/06	D
Soil	DP-4.10-11	27643-003	27643	04/18/06	D

Note:

- D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the

qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results		✓		
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds		✓		
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. In addition, the samples were received in clear jars as opposed to amber jars as required by the method. This exception does not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Qualification of the data was not warranted on this basis. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	<u>Concentration</u>
OCDD	1.93 pg/g

Identification and Quantitation of Target Compounds

According to the laboratory, the concentrations of the following analytes in the samples listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers.

<u>Sample</u>	<u>Analyte</u>
DP-4.12-13	Total TCDF, Total PeCDF, 1,2,3,6,7,8-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, Total HxCDF, 1,2,3,4,6,7,8-HpCDF, and Total HpCDF
DP-4.13-6	Total TCDF, Total PeCDF, 1,2,3,6,7,8-HxCDF, 2,3,4,6,7,8-HxCDF, and Total HxCDF
DP-4.10-11	Total PeCDF, 1,2,3,6,7,8-HxCDF, 2,3,4,6,7,8-HxCDF, and Total HxCDF

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

The data were acceptable as reported and did not warrant any qualification.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.

DV Qualifier	Definition
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

The data were acceptable as reported and warranted no qualification. To confidently use any of the analytical data within these sample sets, the data user should understand the limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran

Acronym

Definition

U.S. EPA

United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

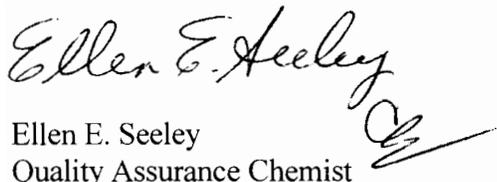
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Report Reviewed and Approved By:


Ellen E. Seeley
Quality Assurance Chemist


William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP-4.12-13

EPA Method 8290

Client Data		Sample Data		Laboratory Data			
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27643-001		
Project:	Ft Bragg-Site Assessment 186277	Sample Size:	17.3 g	QC Batch No.:	7989		
Date Collected:	18-Apr-06	%Solids:	29.9	Date Analyzed DB-5:	5-May-06		
Time Collected:	0800			Dates Analyzed DB-225:	2-May-06 4-May-06 8-May-06		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	192				69.7	40 - 135	
1,2,3,7,8-PeCDD	476				78.2	40 - 135	
1,2,3,4,7,8-HxCDD	342				73.3	40 - 135	
1,2,3,6,7,8-HxCDD	495				77.6	40 - 135	
1,2,3,7,8,9-HxCDD	430				92.6	40 - 135	
1,2,3,4,6,7,8-HpCDD	2000				71.4	40 - 135	
OCDD	2940			B	76.3	40 - 135	
2,3,7,8-TCDF	1250				78.6	40 - 135	
1,2,3,7,8-PeCDF	676				78.8	40 - 135	
2,3,4,7,8-PeCDF	1190				71.3	40 - 135	
1,2,3,4,7,8-HxCDF	402				65.4	40 - 135	
1,2,3,6,7,8-HxCDF	459			D	73.8	40 - 135	
2,3,4,6,7,8-HxCDF	549			D	78.1	40 - 135	
1,2,3,7,8,9-HxCDF	173			D	75.7	40 - 135	
1,2,3,4,6,7,8-HpCDF	579			D	87.3	40 - 135	
1,2,3,4,7,8,9-HpCDF	143				72.8	40 - 135	
OCDF	227				77.8	40 - 135	
Totals							
Total TCDD	6270						
Total PeCDD	6920						
Total HxCDD	7300						
Total HpCDD	3450						
Total TCDF	25600			D			
Total PeCDF	11400			D			
Total HxCDF	4310			D			
Total HpCDF	1200			D			
Toxic Equivalent Quotient (TEQ) Data^e							
TEQ (Min):	1730						
a. Sample specific estimated detection limit.							
b. Estimated maximum possible concentration.							
c. Method detection limit.							
d. Lower control limit - upper control limit.							
e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)							

Analyst: JMH

Approved By: Martha M. Maier 10-May-2006 12:36

Sample ID: DP-4.13-6

EPA Method 8290

<u>Client Data</u>		<u>Sample Data</u>		<u>Laboratory Data</u>			
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27643-002		
Project:	Ft Bragg-Site Assessment 186277	Sample Size:	11.8 g	QC Batch No.:	7989		
Date Collected:	18-Apr-06	%Solids:	38.8	Date Analyzed DB-5:	5-May-06		
Time Collected:	0950			Date Analyzed DB-225:	8-May-06		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	95.4				76.3	40 - 135	
1,2,3,7,8-PeCDD	235				78.1	40 - 135	
1,2,3,4,7,8-HxCDD	171				78.6	40 - 135	
1,2,3,6,7,8-HxCDD	266				79.3	40 - 135	
1,2,3,7,8,9-HxCDD	235				93.6	40 - 135	
1,2,3,4,6,7,8-HpCDD	1070				71.7	40 - 135	
OCDD	1500			B	82.6	40 - 135	
2,3,7,8-TCDF	631				78.9	40 - 135	
1,2,3,7,8-PeCDF	362				79.6	40 - 135	
2,3,4,7,8-PeCDF	615				74.2	40 - 135	
1,2,3,4,7,8-HxCDF	209				70.1	40 - 135	
1,2,3,6,7,8-HxCDF	232			D	76.1	40 - 135	
2,3,4,6,7,8-HxCDF	289			D	80.4	40 - 135	
1,2,3,7,8,9-HxCDF	88.4				85.8	40 - 135	
1,2,3,4,6,7,8-HpCDF	295				95.0	40 - 135	
1,2,3,4,7,8,9-HpCDF	71.0				74.0	40 - 135	
OCDF	118				79.6	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data^e		
Total TCDD	3140				TEQ (Min):	883	
Total PeCDD	3590				a. Sample specific estimated detection limit.		
Total HxCDD	3840				b. Estimated maximum possible concentration.		
Total HpCDD	1840				c. Method detection limit.		
Total TCDF	13000			D	d. Lower control limit - upper control limit.		
Total PeCDF	5880			D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)		
Total HxCDF	2250			D			
Total HpCDF	592						

Analyst: JMH

Approved By: Martha M. Maier 10-May-2006 12:36

Sample ID: DP-4.10-11

EPA Method 8290

Client Data
 Name: Curtis & Tompkins, Ltd.
 Project: Ft Bragg-Site Assessment 186277
 Date Collected: 18-Apr-06
 Time Collected: 1335

Sample Data
 Matrix: Soil
 Sample Size: 19.0 g
 %Solids: 41.4

Laboratory Data

Lab Sample: 27643-003 Date Received: 2-May-06
 QC Batch No.: 7989 Date Extracted: 4-May-06
 Date Analyzed DB-5: 5-May-06 Dates Analyzed DB-225: 8-May-06

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	43.4				13C-2,3,7,8-TCDD	73.7	40 - 135	
1,2,3,7,8-PeCDD	34.0				13C-1,2,3,7,8-PeCDD	77.4	40 - 135	
1,2,3,4,7,8-HxCDD	10.9				13C-1,2,3,4,7,8-HxCDD	77.4	40 - 135	
1,2,3,6,7,8-HxCDD	14.7				13C-1,2,3,6,7,8-HxCDD	79.1	40 - 135	
1,2,3,7,8,9-HxCDD	12.8				13C-1,2,3,4,6,7,8-HpCDD	91.6	40 - 135	
1,2,3,4,6,7,8-HpCDD	56.8				13C-OCDD	69.9	40 - 135	
OCDD	167			B	13C-2,3,7,8-TCDF	83.1	40 - 135	
2,3,7,8-TCDF	398				13C-1,2,3,7,8-PeCDF	78.3	40 - 135	
1,2,3,7,8-PeCDF	110				13C-2,3,4,7,8-PeCDF	78.0	40 - 135	
2,3,4,7,8-PeCDF	136				13C-1,2,3,4,7,8-HxCDF	71.6	40 - 135	
1,2,3,4,7,8-HxCDF	24.7				13C-1,2,3,6,7,8-HxCDF	67.9	40 - 135	
1,2,3,6,7,8-HxCDF	29.6			D	13C-2,3,4,6,7,8-HxCDF	77.1	40 - 135	
2,3,4,6,7,8-HxCDF	28.3			D	13C-1,2,3,7,8,9-HxCDF	80.8	40 - 135	
1,2,3,7,8,9-HxCDF	10.1				13C-1,2,3,4,6,7,8-HpCDF	77.8	40 - 135	
1,2,3,4,6,7,8-HpCDF	18.5				13C-1,2,3,4,7,8,9-HpCDF	92.7	40 - 135	
1,2,3,4,7,8,9-HpCDF	4.71				13C-OCDF	74.7	40 - 135	
OCDF	11.8				37Cl-2,3,7,8-TCDD	77.0	40 - 135	
Totals								
Total TCDD	572				TEQ (Min):	205		
Total PeCDD	333				a. Sample specific estimated detection limit			
Total HxCDD	196				b. Estimated maximum possible concentration			
Total HpCDD	102				c. Method detection limit			
Total TCDF	5820				d. Lower control limit - upper control limit			
Total PeCDF	1400			D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HxCDF	266			D				
Total HpCDF	41.5							

Analyst: JMH

Approved By: Martha M. Maier 10-May-2006 12:36

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Reviewed By: E. Seelley

Sample Collection Dates: 4/18/06

Approved By: WJK

Client: Acton Mickelson Environmental, Inc.

Completion Date: 7/10/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 07043
 *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	(1)	✓
Laboratory Method Blank Results	✓	(2)	✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓	(3)	✓
Verification of the EDD in XLS Format	✓		✓

Comments:

(1) Samples were received in clear glass jars instead of the method-specified amber jars.

(2) OCDD was present in the Method Blank.

(3) Diphenylether interference was observed in one or more samples.

Curtis & Tompkins SDG: 186277

Method Blank		EPA Method 8290			
Matrix:	Soil	QC Batch No.:	7989	Lab Sample:	0-MB001
Sample Size:	10.0 g	Date Extracted:	4-May-06	Date Analyzed DB-5:	5-May-06
				Date Analyzed DB-225:	NA
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.0446		93.3	40 - 135
1,2,3,7,8-PeCDD	ND	0.0451		86.7	40 - 135
1,2,3,4,7,8-HxCDD	ND	0.0830		86.1	40 - 135
1,2,3,6,7,8-HxCDD	ND	0.0830		90.5	40 - 135
1,2,3,7,8,9-HxCDD	ND	0.0838		90.8	40 - 135
1,2,3,4,6,7,8-HpCDD	ND	0.129		67.8	40 - 135
OCDD	1.93			100	40 - 135
2,3,7,8-TCDF	ND	0.0408		88.0	40 - 135
1,2,3,7,8-PeCDF	ND	0.0496		87.6	40 - 135
2,3,4,7,8-PeCDF	ND	0.0475		84.7	40 - 135
1,2,3,4,7,8-HxCDF	ND	0.0590		83.5	40 - 135
1,2,3,6,7,8-HxCDF	ND	0.0535		88.2	40 - 135
2,3,4,6,7,8-HxCDF	ND	0.0608		84.7	40 - 135
1,2,3,7,8,9-HxCDF	ND	0.0970		85.3	40 - 135
1,2,3,4,6,7,8-HpCDF	ND	0.222		88.9	40 - 135
1,2,3,4,7,8,9-HpCDF	ND	0.233		68.9	40 - 135
OCDF	ND	0.196		90.1	40 - 135
Totals					
Total TCDD	ND	0.0446			
Total PeCDD	ND	0.0451			
Total HxCDD	ND	0.0833			
Total HpCDD	ND	0.129			
Total TCDF	ND	0.0408			
Total PeCDF	ND	0.0486			
Total HxCDF	ND	0.0676			
Total HpCDF	ND	0.228			
Toxic Equivalent Quotient (TEQ) Data^e					
TEQ (Min):	0.000193				
a. Sample specific estimated detection limit.					
b. Estimated maximum possible concentration.					
c. Method detection limit.					
d. Lower control limit - upper control limit.					
e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)					

Analyst: JMH

Approved By: Martha M. Maier 10-May-2006 12:36

EPA Method 8290

OPR Results

Matrix: Soil		QC Batch No.: 7989	Lab Sample: 0-OPR001	
Sample Size: 10.0 g		Date Extracted: 4-May-06	Date Analyzed DB-5: 5-May-06	
		Date Analyzed DB-225: NA		
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	
			Labeled Standard	
			%R	
			LCL-UCL	
2,3,7,8-TCDD	10.0	10.9	75.2	40 - 135
1,2,3,7,8-PeCDD	50.0	51.9	78.2	40 - 135
1,2,3,4,7,8-HxCDD	50.0	52.2	73.4	40 - 135
1,2,3,6,7,8-HxCDD	50.0	52.4	78.9	40 - 135
1,2,3,7,8,9-HxCDD	50.0	52.5	66.8	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	52.3	41.5	40 - 135
OCDD	100	106	85.4	40 - 135
2,3,7,8-TCDF	10.0	10.2	77.9	40 - 135
1,2,3,7,8-PeCDF	50.0	52.6	77.1	40 - 135
2,3,4,7,8-PeCDF	50.0	51.9	75.8	40 - 135
1,2,3,4,7,8-HxCDF	50.0	52.0	73.0	40 - 135
1,2,3,6,7,8-HxCDF	50.0	52.0	77.7	40 - 135
2,3,4,6,7,8-HxCDF	50.0	51.5	65.9	40 - 135
1,2,3,7,8,9-HxCDF	50.0	52.6	65.3	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	52.2	64.3	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	52.8	44.1	40 - 135
OCDF	100	104	80.7	40 - 135

Analyst: JMH

Approved By: Martha M. Maier 10-May-2006 12:36

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 10, 2006

Alta Project I.D.: 27643

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the three soil samples received at Alta Analytical Laboratory on May 02, 2006 under your Project Name "Ft. Bragg-Site Assessment 186277". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP. If these applicable test methods, this report should not be reproduced, copied in full without the written approval of ALTA.



Section I: Sample Inventory Report

Date Received: 5/2/2006

<u>Alta Lab. ID</u>	<u>Client Sample ID</u>
27643-001	DP-4.12-13
27643-002	DP-4.13-6
27643-003	DP-4.10-11

Curtis & Tompkins, Ltd.
 Analytical Laboratories, Since 1878
 2323 Fifth Street
 Berkeley, CA 94710
 (510) 486-0900
 (510) 486-0532

27643

2.9C

Project Number: 186277
 Site: Ft Bragg-Site Assessment

Subcontract Laboratory:
 Alta Analytical Lab, Inc.
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 933-1640
 ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker
 *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
DP-4.12-13	04/18 08:00	Soil	8290	186277-001	
DP-4.13-6	04/18 09:50	Soil	8290	186277-004	
P-4.10-11	04/18 13:35	Soil	8290	186277-007	

Notes:	Relinquished By:	Received By:
	<i>F. M. [Signature]</i>	<i>Bettina J. Benedict</i>
	Date/Time: 5-1-06/1700	Date/Time: 3/2/06 0957

Signature on this form constitutes a firm Purchase Order for the services requested above.

SAMPLE LOG-IN CHECKLIST

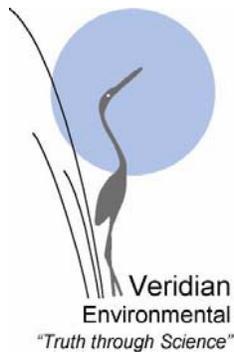
Alta Project #: 27643

Samples Arrival:	Date/Time 5/2/06 0957	Initials: BBB	Location: WR-2 Shelf/Rack: _____			
Logged In:	Date/Time 5/2/06 1332	Initials: BBB	Location: WR-2 Shelf/Rack: A-3			
Delivered By:	FedEx	UPS	<u>Cal</u>	DHL	Hand Delivered	Other
Preservation:	<u>Ice</u>	Blue Ice	Dry Ice	None		
Temp °C	2.9°C	Time:	1015	Thermometer ID: DT-20		

	YES	NO	NA		
Adequate Sample Volume Received?	✓				
Holding Time Acceptable?	✓				
Shipping Container(s) Intact?	✓				
Shipping Custody Seals Intact?			✓		
Shipping Documentation Present?	✓				
Airbill	✓				
Trk #	C10129000026462				
Sample Container Intact?	✓				
Sample Custody Seals Intact?			✓		
Chain of Custody / Sample Documentation Present?	✓				
COC Anomaly/Sample Acceptance Form completed?		✓			
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓		
Na ₂ S ₂ O ₃ Preservation Documented?			<u>None</u>		
Shipping Container	Alta	<u>Client</u>	Retain	<u>Return</u>	Dispose

Comments:

Samples received in clear glass jars.



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT

***Georgia-Pacific
California Wood Products
Manufacturing Facility***

Laboratory Project IDs

- *Alta Analytical Laboratory, Inc.
#27265*
- *Curtis & Tompkins, Ltd.
#184776*

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on three soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP8.7-2	27265-001	27265	01/24/06	D
Soil	DP8.9-2.5	27265-002	27265	01/24/06	D
Soil	HSA4.5-16	27265-003	27265	01/24/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the

qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results	✓			
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			✓	
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided.

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J” on the qualified analytical result forms.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J”.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified a few minor aspects of the analytical data that required qualification due to laboratory method blank contamination and results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

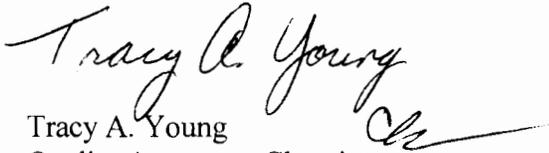
U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

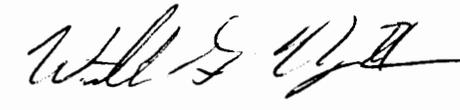
Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:


Tracy A. Young
Quality Assurance Chemist

Report Reviewed and Approved By:


William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP8.7-2 **EPA Method 8290**

Client Data	Laboratory Data
Name: Curtis & Tompkins, Ltd.	Lab Sample: 27265-001
Project: Ft Bragg-Site Assessment	QC Batch No.: 7750 ✓
Date Collected: 24-Jan-06	Date Analyzed DB-5: 15-Feb-06
Time Collected: 1034	Date Analyzed DB-225: NA
	Date Received: 8-Feb-06
	Date Extracted: 13-Feb-06

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.131			IS 13C-2,3,7,8-TCDD	89.4	40 - 135	
1,2,3,7,8-PeCDD	ND	0.134			13C-1,2,3,7,8-PeCDD	108	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.103			13C-1,2,3,4,7,8-HxCDD	98.6	40 - 135	
1,2,3,6,7,8-HxCDD	0.238		J	J	13C-1,2,3,6,7,8-HxCDD	108	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.155			13C-1,2,3,4,6,7,8-HpCDD	85.8	40 - 135	
1,2,3,4,6,7,8-HpCDD	1.86		J	J	13C-OCDD	57.0	40 - 135	
OCDD	8.54				13C-2,3,7,8-TCDF	86.7	40 - 135	
2,3,7,8-TCDF	ND	0.143			13C-1,2,3,7,8-PeCDF	106	40 - 135	
1,2,3,7,8-PeCDF	ND	0.165			13C-2,3,4,7,8-PeCDF	110	40 - 135	
2,3,4,7,8-PeCDF	ND	0.148			13C-1,2,3,4,7,8-HxCDF	114	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0520			13C-1,2,3,6,7,8-HxCDF	113	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0517			13C-2,3,4,6,7,8-HxCDF	106	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0565			13C-1,2,3,7,8,9-HxCDF	93.2	40 - 135	
1,2,3,7,8,9-HxCDF	0.484		J	J	13C-1,2,3,4,6,7,8-HpCDF	87.3	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND				13C-1,2,3,4,7,8,9-HpCDF	94.1	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.0712			13C-OCDF	68.0	40 - 135	
OCDF	ND	0.272			CRS 37Cl-2,3,7,8-TCDD	97.7	40 - 135	

Totals		Toxic Equivalent Quotient (TEQ) Data ^e	
TEQ (Min):	0.0917	TEQ (Min):	0.0917
Total TCDD	ND	0.131	
Total PeCDD	ND	0.134	
Total HxCDD	0.724		1.24
Total HpCDD	2.60		
Total TCDF	1.61		
Total PeCDF	ND	0.154	
Total HxCDF	0.484		
Total HpCDF	ND	0.214	

a. Sample specific estimated detection limit.
 b. Estimated maximum possible concentration.
 c. Method detection limit.
 d. Lower control limit - upper control limit.
 e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)

Approved By: Martha M. Maier 03-Apr-2006 15:50

Sample ID: DP8.9-2.5 **EPA Method 8290**

Client Data
 Name: Curtis & Tompkins, Ltd.
 Project: Ft Bragg-Site Assessment
 Date Collected: 24-Jan-06
 Time Collected: 1131

Sample Data
 Matrix: Soil
 Sample Size: 13.4 g
 %Solids: 74.8

Laboratory Data
 Lab Sample: 27265-002
 QC Batch No.: 7750 ✓
 Date Analyzed DB-5: 15-Feb-06
 Date Received: 8-Feb-06
 Date Extracted: 13-Feb-06
 Date Analyzed DB-225: NA

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.153			13C-2,3,7,8-TCDD	91.5	40 - 135	
1,2,3,7,8-PeCDD	0.318	J		J	13C-1,2,3,7,8-PeCDD	111	40 - 135	
1,2,3,4,7,8-HxCDD	0.323	J		J	13C-1,2,3,4,7,8-HxCDD	94.8	40 - 135	
1,2,3,6,7,8-HxCDD	3.45				13C-1,2,3,6,7,8-HxCDD	102	40 - 135	
1,2,3,7,8,9-HxCDD	1.42	J		J	13C-1,2,3,4,6,7,8-HpCDD	87.5	40 - 135	
1,2,3,4,6,7,8-HpCDD	54.6				13C-OCDD	57.0	40 - 135	
OCDD	426				13C-2,3,7,8-TCDF	95.9	40 - 135	
2,3,7,8-TCDF	0.476	J		J	13C-1,2,3,7,8-PeCDF	113	40 - 135	
1,2,3,7,8-PeCDF	0.235	J		J	13C-2,3,4,7,8-PeCDF	116	40 - 135	
2,3,4,7,8-PeCDF	0.489	J		J	13C-1,2,3,4,7,8-HxCDF	102	40 - 135	
1,2,3,4,7,8-HxCDF	0.782	J		J	13C-1,2,3,6,7,8-HxCDF	96.9	40 - 135	
1,2,3,6,7,8-HxCDF	0.460	J		J	13C-2,3,4,6,7,8-HxCDF	96.8	40 - 135	
2,3,4,6,7,8-HxCDF	0.608	J		J	13C-1,2,3,7,8,9-HxCDF	96.8	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.351			13C-1,2,3,4,6,7,8-HpCDF	82.8	40 - 135	
1,2,3,4,6,7,8-HpCDF	25.1				13C-1,2,3,4,7,8,9-HpCDF	92.9	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND		1.01		13C-OCDF	65.9	40 - 135	
OCDF	66.5				CRS 37Cl-2,3,7,8-TCDD	97.9	40 - 135	

Totals

		Toxic Equivalent Quotient (TEQ) Data ^c	
		TEQ (Min):	2.17
Total TCDD	0.794		
Total PeCDD	1.19		
Total HxCDD	15.9		1.59
Total HpCDD	101		
Total TCDF	5.00		
Total PeCDF	3.71		3.96
Total HxCDF	8.83		
Total HpCDF	82.9		83.9

- a. Sample specific estimated detection limit.
- b. Estimated maximum possible concentration.
- c. Method detection limit.
- d. Lower control limit - upper control limit.
- e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)

Analyst: DMS Approved By: Martha M. Maier 03-Apr-2006 15:50

Sample ID: HSA4.5-16 **EPA Method 8290**

<u>Client Data</u>		<u>Sample Data</u>		<u>Laboratory Data</u>	
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27265-003
Project:	Ft Bragg-Site Assessment	Sample Size:	11.6 g	QC Batch No.:	7750 ✓
Date Collected:	24-Jan-06	%Solids:	85.6	Date Analyzed DB-5:	15-Feb-06
Time Collected:	1102			Date Analyzed DB-225:	NA

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.120			IS 13C-2,3,7,8-TCDD	96.9	40 - 135	
1,2,3,7,8-PeCDD	ND	0.143			13C-1,2,3,7,8-PeCDD	115	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.126			13C-1,2,3,4,7,8-HxCDD	101	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.133			13C-1,2,3,6,7,8-HxCDD	106	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.125			13C-1,2,3,4,6,7,8-HpCDD	92.7	40 - 135	
1,2,3,4,6,7,8-HpCDD	1.88 J			J	13C-OCDD	65.1	40 - 135	
OCDD	13.2				13C-2,3,7,8-TCDF	96.9	40 - 135	
2,3,7,8-TCDF	ND	0.106			13C-1,2,3,7,8-PeCDF	119	40 - 135	
1,2,3,7,8-PeCDF	ND	0.124			13C-2,3,4,7,8-PeCDF	119	40 - 135	
2,3,4,7,8-PeCDF	ND	0.109			13C-1,2,3,4,7,8-HxCDF	107	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0292			13C-1,2,3,6,7,8-HxCDF	105	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0278			13C-2,3,4,6,7,8-HxCDF	106	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0311			13C-1,2,3,7,8,9-HxCDF	102	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0482			13C-1,2,3,4,6,7,8-HpCDF	89.8	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND		0.195		13C-1,2,3,4,7,8,9-HpCDF	97.3	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.0502			13C-OCDF	75.4	40 - 135	
OCDF	0.289 J			J	CRS 37Cl-2,3,7,8-TCDD	95.7	40 - 135	

Totals		Toxic Equivalent Quotient (TEQ) Data ^c	
Total TCDD	ND	TEQ (Min):	0.0201
Total PeCDD	ND	a. Sample specific estimated detection limit.	
Total HxCDD	0.200	b. Estimated maximum possible concentration.	
Total HpCDD	3.33	c. Method detection limit.	
Total TCDF	ND	d. Lower control limit - upper control limit.	
Total PeCDF	ND	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors.(WHO)	
Total HxCDF	ND		
Total HpCDF	0.235		
			0.430

Analyst: DMS Approved By: Martha M. Maier 03-Apr-2006 15:50

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment
 Sample Collection Dates: 01/24/06
 Client: Acton Mickelson Environmental, Inc.
 Project Manager: Jeff Heglie
 Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Reviewed By: Jay
 Approved By: WJK
 Completion Date: 7/11/06

Deliverables: Level II

SDG: 27265
 *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓		✓
Laboratory Method Blank Results	✓		✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓	1.	✓
Verification of the EDD in XLS Format	✓		✓

Comments: 1. All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) are estimated & flagged "g"

Curtis & Tompkins SDG: 184776

Method Blank		EPA Method 8290					
Matrix:	Soil	QC Batch No.:	7750 ✓	Lab Sample:	0-MB001		
Sample Size:	10.0 g	Date Extracted:	13-Feb-06	Date Analyzed DB-5:	15-Feb-06		
				Date Analyzed DB-225:	NA		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0919		13C-2,3,7,8-TCDD	89.3	40 - 135	
1,2,3,7,8-PeCDD	ND	0.126		13C-1,2,3,7,8-PeCDD	99.1	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.103		13C-1,2,3,4,7,8-HxCDD	86.4	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.105		13C-1,2,3,6,7,8-HxCDD	94.3	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.100		13C-1,2,3,4,6,7,8-HpCDD	77.9	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.0686		13C-OCDD	52.5	40 - 135	
OCDD	ND	0.159		13C-2,3,7,8-TCDF	85.6	40 - 135	
2,3,7,8-TCDF	ND	0.102		13C-1,2,3,7,8-PeCDF	104	40 - 135	
1,2,3,7,8-PeCDF	ND	0.166		13C-2,3,4,7,8-PeCDF	102	40 - 135	
2,3,4,7,8-PeCDF	ND	0.161		13C-1,2,3,4,7,8-HxCDF	96.6	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0334		13C-1,2,3,6,7,8-HxCDF	95.8	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0324		13C-2,3,4,6,7,8-HxCDF	92.3	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0372		13C-1,2,3,7,8,9-HxCDF	92.9	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0540	0.147	13C-1,2,3,4,6,7,8-HpCDF	80.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND	0.0810		13C-1,2,3,4,7,8,9-HpCDF	79.8	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.268		13C-OCDF	59.5	40 - 135	
OCDF	ND			CRS 37Cl-2,3,7,8-TCDD	98.2	40 - 135	
Totals				Toxic Equivalent Quotient (TEQ) Data	e		
Total TCDD	ND	0.0919		TEQ (Min):	0		
Total PeCDD	ND	0.126		a. Sample specific estimated detection limit.			
Total HxCDD	ND	0.102		b. Estimated maximum possible concentration.			
Total HpCDD	ND	0.0686		c. Method detection limit.			
Total TCDF	ND	0.102		d. Lower control limit - upper control limit.			
Total PeCDF	ND	0.163		e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HxCDF	ND	0.0386					
Total HpCDF	ND	0.147					

Analyst: DMS

Approved By: Martha M. Maier 03-Apr-2006 15:50

OPR Results		EPA Method 8290				
Matrix:	Soil	QC Batch No.:	7750	Lab Sample:	0-OPR001	
Sample Size:	10.0 g	Date Extracted:	13-Feb-06	Date Analyzed DB-5:	14-Feb-06	
				Date Analyzed DB-225:	NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	9.83	7 - 13	IS 13C-2,3,7,8-TCDD	90.2	40 - 135
1,2,3,7,8-PeCDD	50.0	52.1	35 - 65	13C-1,2,3,7,8-PeCDD	103	40 - 135
1,2,3,4,7,8-HxCDD	50.0	49.2	35 - 65	13C-1,2,3,4,7,8-HxCDD	89.1	40 - 135
1,2,3,6,7,8-HxCDD	50.0	50.4	35 - 65	13C-1,2,3,6,7,8-HxCDD	96.4	40 - 135
1,2,3,7,8,9-HxCDD	50.0	49.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	81.7	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	50.2	35 - 65	13C-OCDD	55.1	40 - 135
OCDD	100	100	70 - 130	13C-2,3,7,8-TCDF	89.8	40 - 135
2,3,7,8-TCDF	10.0	9.82	7 - 13	13C-1,2,3,7,8-PeCDF	109	40 - 135
1,2,3,7,8-PeCDF	50.0	49.5	35 - 65	13C-2,3,4,7,8-PeCDF	108	40 - 135
2,3,4,7,8-PeCDF	50.0	49.7	35 - 65	13C-1,2,3,4,7,8-HxCDF	101	40 - 135
1,2,3,4,7,8-HxCDF	50.0	49.3	35 - 65	13C-1,2,3,6,7,8-HxCDF	97.2	40 - 135
1,2,3,6,7,8-HxCDF	50.0	50.4	35 - 65	13C-2,3,4,6,7,8-HxCDF	94.0	40 - 135
2,3,4,6,7,8-HxCDF	50.0	50.3	35 - 65	13C-1,2,3,7,8,9-HxCDF	94.8	40 - 135
1,2,3,7,8,9-HxCDF	50.0	49.4	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	87.2	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	49.1	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	84.8	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	49.1	35 - 65	13C-OCDF	63.1	40 - 135
OCDF	100	94.3	70 - 130	CRS 37Cl-2,3,7,8-TCDD	90.9	40 - 135

OK

OK

Analyst: DMS
 Approved By: Martha M. Maier
 18-Feb-2006 12:45

WU OK

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

June 28, 2006

Alta Project I.D.: 27265

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the amended results for the three soil samples received at Alta Analytical Laboratory on February 08, 2006 under your Project Name "Ft Bragg-Site Assessment". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

As requested by Ms. Kay Johnson, the datasheets now include the Toxic Equivalency (TEQ) as calculated using the WHO-1997 Toxic Equivalency Factors.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.



Section I: Sample Inventory Report

Date Received: 2/8/2006

<u>Alta Lab. ID</u>	<u>Client Sample ID</u>
27265-001	DP8.7-2
27265-002	DP8.9-2.5
27265-003	HSA4.5-16

Curtis & Tompkins, Ltd.
 Analytical Laboratories, Since 1878
 2323 Fifth Street
 Berkeley, CA 94710
 (510) 486-0900
 (510) 486-0532

27265
 2.9°C

Project Number: 184776
 Site: Ft Bragg-Site Assessment

Subcontract Laboratory:
 Alta Analytical Lab, Inc.
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 933-1640
 ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker
 *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
P8.7-2	01/24 10:34	Soil	8290	184557-012	
DP8.9-2.5	01/24 11:31	Soil	8290	184557-016	
HSA4.5-16	01/24 11:02	Soil	8290	184557-019	

Notes:	Relinquished By:	Received By:
	<i>Ann Lewis</i>	<i>Bethmar J. Benedict</i>
	Date/Time: 2/7/00 1530	Date/Time: 2/8/00 0930

Signature on this form constitutes a firm Purchase Order for the services requested above.

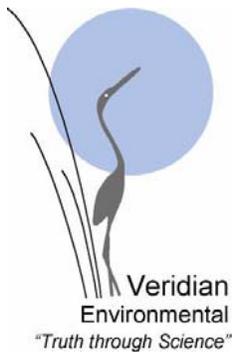
SAMPLE LOG-IN CHECKLIST

Alta Project #: 27265

Samples Arrival:	Date/Time 2/8/06	0915 0935 1000	Initials: CBB	Location: WR-2		
Logged In:	Date/Time 2/9/06	0730	Initials: CBB	Location: WR-2		
Delivered By:	FedEx	UPS	Cal	DHL	Hand Delivered	Other
Preservation:	Ice	Blue Ice	Dry Ice	None		
Temp °C	2.9°C	Time:	0925	Thermometer ID: DT-20		

	YES	NO	NA		
Adequate Sample Volume Received?	✓				
Holding Time Acceptable?	✓				
Shipping Container(s) Intact?	✓				
Shipping Custody Seals Intact?			✓		
Shipping Documentation Present?	✓				
Airbill	Trk # C10129000024383	✓			
Sample Container Intact?	✓				
Sample Custody Seals Intact?			✓		
Chain of Custody / Sample Documentation Present?	✓				
COC Anomaly/Sample Acceptance Form completed?		✓			
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓		
Na ₂ S ₂ O ₃ Preservation Documented?		COC	Sample Container	None	
Shipping Container	Alta	Client	Retain	Return	Dispose

Comments:



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc..
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT
*Georgia-Pacific
California Wood Products
Manufacturing Facility*
Laboratory Project IDs

- *Alta Analytical Laboratory, Inc.*
#27297
- *Curtis & Tompkins, Ltd.*
#184951

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on one soil sample collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the sample was analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	COMPOSITE	27297-001	27297	02/14/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data

that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project sample. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The sample was analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results	✓			
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds	✓			
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.7°C) of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^\circ\text{C}$. This exception does not warrant qualification of the data.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

Data is acceptable as reported, no qualification warranted.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

The data was accepted as reported, no qualifications were warranted. To confidently use any of the analytical data within this sample set, the data user should understand the limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery

<u>Acronym</u>	<u>Definition</u>
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Handwritten signature of Tracy A. Young in black ink, featuring a stylized cursive script with a long horizontal flourish extending to the right.

Tracy A. Young
Quality Assurance Chemist

Report Reviewed and Approved By:

Handwritten signature of William G. Kay II in black ink, featuring a stylized cursive script with a long horizontal flourish extending to the right.

William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A
QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: COMPOSITE **EPA Method 8290**

Client Data	Laboratory Data	
Name: Curtis & Tompkins, Ltd. Project: Fort Bragg-Site Assessment-184951 Date Collected: 14-Feb-06 Time Collected: 0900	Lab Sample: 27297-001 QC Batch No.: 7774 Date Analyzed DB-5: 23-Feb-06	Date Received: 16-Feb-06 Date Extracted: 21-Feb-06 Dates Analyzed DB-225: 28-Feb-06

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	83.6				13C-2,3,7,8-TCDD	95.3	40 - 135	
1,2,3,7,8-PeCDD	225				13C-1,2,3,7,8-PeCDD	92.5	40 - 135	
1,2,3,4,7,8-HxCDD	151				13C-1,2,3,4,7,8-HxCDD	93.3	40 - 135	
1,2,3,6,7,8-HxCDD	243				13C-1,2,3,6,7,8-HxCDD	97.4	40 - 135	
1,2,3,7,8,9-HxCDD	197				13C-1,2,3,4,6,7,8-HpCDD	90.8	40 - 135	
1,2,3,4,6,7,8-HpCDD	981				13C-OCDD	68.2	40 - 135	
OCDD	1190				13C-2,3,7,8-TCDF	94.6	40 - 135	
2,3,7,8-TCDF	494				13C-1,2,3,7,8-PeCDF	97.9	40 - 135	
1,2,3,7,8-PeCDF	290				13C-2,3,4,7,8-PeCDF	95.9	40 - 135	
2,3,4,7,8-PeCDF	495				13C-1,2,3,4,7,8-HxCDF	99.1	40 - 135	
1,2,3,4,7,8-HxCDF	191				13C-1,2,3,6,7,8-HxCDF	93.8	40 - 135	
1,2,3,6,7,8-HxCDF	210				13C-2,3,4,6,7,8-HxCDF	94.1	40 - 135	
2,3,4,6,7,8-HxCDF	273				13C-1,2,3,7,8,9-HxCDF	96.5	40 - 135	
1,2,3,7,8,9-HxCDF	80.2				13C-1,2,3,4,6,7,8-HpCDF	86.2	40 - 135	
1,2,3,4,6,7,8-HpCDF	271				13C-1,2,3,4,7,8,9-HpCDF	86.4	40 - 135	
1,2,3,4,7,8,9-HpCDF	75.4				13C-OCDF	76.0	40 - 135	
OCDF	108				CRS 37CI-2,3,7,8-TCDD	102	40 - 135	

Toxic Equivalent Quotient (TEQ) Data ^e	
TEQ (Min):	768
a. Sample specific estimated detection limit. b. Estimated maximum possible concentration. c. Method detection limit. d. Lower control limit - upper control limit. e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	

Analyst: DMS
 Approved By: William J. Luksemburg 03-Apr-2006 15:52

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Reviewed By: *Jay*

Sample Collection Dates: 02/14/06

Approved By: *Wye*

Client: Acton Mickelson Environmental, Inc.

Completion Date: 7/1/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 27297

*Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail	Problems Identified	Support Documentation Attachments
	Check if Yes or Footnote Letter for Comments Below	Check if Yes or Footnote Number for Comments Below	Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	1.	✓
Laboratory Method Blank Results	✓		✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓		✓
Verification of the EDD in XLS Format	✓		✓

Comments: 1. Temperature upon receipt to subcontract laboratory was 97C (versus 4±2°C in method) - N/A

Curtis & Tompkins SDG: 18495

Method Blank				EPA Method 8290			
Matrix:	Soil	QC Batch No.:	7774 ✓	Lab Sample:	0-MB001	Date Analyzed DB-5:	23-Feb-06
Sample Size:	10.0 g	Date Extracted:	21-Feb-06	Date Analyzed DB-225:	NA		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.150			IS 13C-2,3,7,8-TCDD	85.9	40 - 135
1,2,3,7,8-PeCDD	ND	0.144			13C-1,2,3,7,8-PeCDD	82.8	40 - 135
1,2,3,4,7,8-HxCDD	ND	0.152			13C-1,2,3,4,7,8-HxCDD	77.7	40 - 135
1,2,3,6,7,8-HxCDD	ND	0.161			13C-1,2,3,6,7,8-HxCDD	88.4	40 - 135
1,2,3,7,8,9-HxCDD	ND	0.151			13C-1,2,3,4,6,7,8-HpCDD	73.0	40 - 135
1,2,3,4,6,7,8-HpCDD	ND	0.146			13C-OCDD	57.5	40 - 135
OCDD	ND	0.251			13C-2,3,7,8-TCDF	85.6	40 - 135
2,3,7,8-TCDF	ND	0.140			13C-1,2,3,7,8-PeCDF	87.1	40 - 135
1,2,3,7,8-PeCDF	ND	0.183			13C-2,3,4,7,8-PeCDF	86.8	40 - 135
2,3,4,7,8-PeCDF	ND	0.179			13C-1,2,3,4,7,8-HxCDF	86.2	40 - 135
1,2,3,4,7,8-HxCDF	ND	0.0499			13C-1,2,3,6,7,8-HxCDF	87.2	40 - 135
1,2,3,6,7,8-HxCDF	ND	0.0501			13C-2,3,4,6,7,8-HxCDF	83.6	40 - 135
2,3,4,6,7,8-HxCDF	ND	0.0561			13C-1,2,3,7,8,9-HxCDF	85.0	40 - 135
1,2,3,7,8,9-HxCDF	ND	0.0840			13C-1,2,3,4,6,7,8-HpCDF	75.5	40 - 135
1,2,3,4,6,7,8-HpCDF	ND	0.0647			13C-1,2,3,4,7,8,9-HpCDF	78.3	40 - 135
1,2,3,4,7,8,9-HpCDF	ND	0.0719			13C-OCDF	65.4	40 - 135
OCDF	ND	0.374			CRS 37Cl-2,3,7,8-TCDD	92.2	40 - 135
Totals							
Total TCDD	ND	0.150			TEQ (Min):	0	
Total PeCDD	ND	0.144			a. Sample specific estimated detection limit.		
Total HxCDD	ND	0.154			b. Estimated maximum possible concentration.		
Total HpCDD	ND	0.146			c. Method detection limit.		
Total TCDF	ND	0.140			d. Lower control limit - upper control limit.		
Total PeCDF	ND	0.181			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)		
Total HxCDF	ND	0.0590					
Total HpCDF	ND	0.0681					

Analyst: DMS

all ND

Approved By: William J. Luksemburg 03-Apr-2006 15:52

OPR Results		EPA Method 8290			
Matrix: Soil	QC Batch No.: 7774 ✓	Lab Sample: 0-OPR001			
Sample Size: 10.0 g	Date Extracted: 21-Feb-06	Date Analyzed DB-5: 23-Feb-06	Date Analyzed DB-225: NA		
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	7 - 13	IS 13C-2,3,7,8-TCDD	86.8	40 - 135
1,2,3,7,8-PeCDD	50.0	35 - 65	13C-1,2,3,7,8-PeCDD	84.3	40 - 135
1,2,3,4,7,8-HxCDD	50.0	35 - 65	13C-1,2,3,4,7,8-HxCDD	83.9	40 - 135
1,2,3,6,7,8-HxCDD	50.0	35 - 65	13C-1,2,3,6,7,8-HxCDD	91.9	40 - 135
1,2,3,7,8,9-HxCDD	50.0	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	87.9	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	35 - 65	13C-OCDD	63.9	40 - 135
OCDD	100	70 - 130	13C-2,3,7,8-TCDF	89.8	40 - 135
2,3,7,8-TCDF	10.0	7 - 13	13C-1,2,3,7,8-PeCDF	95.0	40 - 135
1,2,3,7,8-PeCDF	50.0	35 - 65	13C-2,3,4,7,8-PeCDF	92.7	40 - 135
2,3,4,7,8-PeCDF	50.0	35 - 65	13C-1,2,3,4,7,8-HxCDF	91.3	40 - 135
1,2,3,4,7,8-HxCDF	50.0	35 - 65	13C-1,2,3,6,7,8-HxCDF	91.7	40 - 135
1,2,3,6,7,8-HxCDF	50.0	35 - 65	13C-2,3,4,6,7,8-HxCDF	85.8	40 - 135
2,3,4,6,7,8-HxCDF	50.0	35 - 65	13C-1,2,3,7,8,9-HxCDF	85.1	40 - 135
1,2,3,7,8,9-HxCDF	50.0	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	76.1	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	85.0	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	35 - 65	13C-OCDF	70.6	40 - 135
OCDF	100	70 - 130	CRS 37Cl-2,3,7,8-TCDD	87.1	40 - 135

Analyst: DMS

Approved By:

William J. Luksemburg 01-Mar-2006 13:07

WJL OK

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

June 28, 2006

Alta Project I.D.: 27297

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the amended results for the one soil sample received at Alta Analytical Laboratory on February 16, 2006 under your Project Name "Fort Bragg-Site Assessment-184951". This sample was extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

As requested by Ms. Kay Johnson, the datasheets now include the Toxic Equivalency (TEQ) as calculated using the WHO-1997 Toxic Equivalency Factors.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
HRMS Services Director



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.



Section I: Sample Inventory Report

Date Received: 2/16/2006

Alta Lab. ID

Client Sample ID

27297-001

COMPOSITE

Curtis & Tompkins, Ltd.
 Analytical Laboratories, Since 1878
 2323 Fifth Street
 Berkeley, CA 94710
 (510) 486-0900
 (510) 486-0532

Project Number: 184951 ✓
 Site: Ft Bragg-Site Assessment

27297
 0.7°C

Subcontract Laboratory:
 Alta Analytical Lab, Inc.
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 933-1640
 ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker
 *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
COMPOSITE	✓ 02/14 09:00	Soil	8290	184951-007	

Notes:	Relinquished By:	Received By:
	<i>[Signature]</i>	<i>[Signature]</i>
	Date/Time: 2/15/06 16:36	Date/Time: 2/16/06 0900

Signature on this form constitutes a firm Purchase Order for the services requested above.

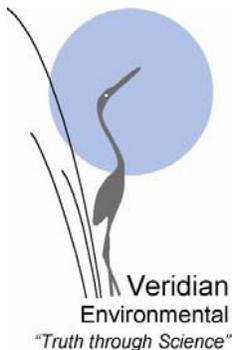
SAMPLE LOG-IN CHECKLIST

Alta Project #: 27297

Samples Arrival:	Date/Time 2/16/06 0900	Initials: JBB	Location: WR-2
Logged In:	Date/Time 2/16/06 1116	Initials: JBB	Location: WR-2
Delivered By:	FedEx	UPS	Cal
			DHL
			Hand Delivered
			Other
Preservation:	Ice	Blue Ice	Dry Ice
			None
Temp °C	0.7°C	Time:	0915
			Thermometer ID: DT-20

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill	✓		
Trk #	C10129000024614		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓
Na ₂ S ₂ O ₃ Preservation Documented?			None
Shipping Container	Alta	Client	Retain
			Return
			Dispose

Comments:



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT
*Georgia-Pacific
California Wood Products
Manufacturing Facility*
Laboratory Project IDs

- *Alta Analytical Laboratory, Inc.*
#26846
- *Curtis & Tompkins, Ltd.*
#182802

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on one soil sample collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the sample was analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP3.59-1	26846-001	26846	10/10/05	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data

that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project sample. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The sample was analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results	✓			
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			✓	
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.2°C) of the sample upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^\circ\text{C}$. In addition, upon receipt at the subcontract laboratory, it was noted that the chain-of-custody record and the label did not match the sample date. Alta Analytical received authorization to use the chain-of-custody record sample date and proceeded with analysis. These exceptions do not warrant qualification of the data.

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J” on the qualified analytical result forms.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J”.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified a few minor aspects of the analytical data that required qualification due to laboratory method blank contamination and results below the calibration

range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:



Tracy A. Young
Quality Assurance Chemist

Report Reviewed and Approved By:



William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: **DP3.59-1**

EPA Method **8290**

Client Data

Name: Curtis & Tompkins, Ltd.
 Project: 182802
 Date Collected: 10-Oct-05
 Time Collected: 1140

Sample Data

Matrix: Soil
 Sample Size: 10.9 g
 %Solids: 94.9

Laboratory Data

Lab Sample: 26846-001
 QC Batch No.: 7397 ✓
 Date Analyzed DB-5: 10-Nov-05
 Date Received: 28-Oct-05
 Date Extracted: 8-Nov-05
 Date Analyzed DB-225: NA

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UC ^L d	Qualifiers
2,3,7,8-TCDD	ND	0.178			IS 13C-2,3,7,8-TCDD	63.9	40 - 135	
1,2,3,7,8-PeCDD	0.737 J			J	13C-1,2,3,7,8-PeCDD	70.5	40 - 135	
1,2,3,4,7,8-HxCDD	3.07				13C-1,2,3,4,7,8-HxCDD	68.3	40 - 135	
1,2,3,6,7,8-HxCDD	22.8				13C-1,2,3,6,7,8-HxCDD	67.5	40 - 135	
1,2,3,7,8,9-HxCDD	9.19				13C-1,2,3,4,6,7,8-HpCDD	81.9	40 - 135	
1,2,3,4,6,7,8-HpCDD	559				13C-OCDD	93.9	40 - 135	
OCDD	3560				13C-2,3,7,8-TCDF	58.3	40 - 135	
2,3,7,8-TCDF	0.653				13C-1,2,3,7,8-PeCDF	65.2	40 - 135	
1,2,3,7,8-PeCDF	1.55 J			J	13C-2,3,4,7,8-PeCDF	65.2	40 - 135	
2,3,4,7,8-PeCDF	2.35 J			J	13C-1,2,3,4,7,8-HxCDF	61.5	40 - 135	
1,2,3,4,7,8-HxCDF	8.06				13C-1,2,3,6,7,8-HxCDF	67.7	40 - 135	
1,2,3,6,7,8-HxCDF	10.2				13C-2,3,4,6,7,8-HxCDF	68.6	40 - 135	
2,3,4,6,7,8-HxCDF	9.11				13C-1,2,3,7,8,9-HxCDF	75.9	40 - 135	
1,2,3,7,8,9-HxCDF	1.46 J			J	13C-1,2,3,4,6,7,8-HpCDF	73.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	208				13C-1,2,3,4,7,8,9-HpCDF	73.0	40 - 135	
1,2,3,4,7,8,9-HpCDF	10.0				13C-OCDF	77.5	40 - 135	
OCDF	336				CRS 37Cl-2,3,7,8-TCDD	63.4	40 - 135	

Toxic Equivalent Quotient (TEQ) Data^c

Total TCDD	ND	0.178			TEQ (Min): 16.6			
Total PeCDD	4.29							
Total HxCDD	109							
Total HpCDD	879							
Total TCDF	8.14							
Total PeCDF	40.9							
Total HxCDF	213							
Total HpCDF	506							

- a. Sample specific estimated detection limit.
- b. Estimated maximum possible concentration.
- c. Method detection limit.
- d. Lower control limit - upper control limit.
- e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors.(WHO)

Analyst: MAS

Approved By: Martha M. Maier 03-Apr-2006 15:50

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Reviewed By: Jay

Sample Collection Dates: 10/10/05

Approved By: WJK

Client: Acton Mickelson Environmental, Inc.

Completion Date: 7/1/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 26846

*Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	1.	✓
Laboratory Method Blank Results	✓		✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓	2.	✓
Verification of the EDD in XLS Format	✓		✓

Comments: 1. Temperature upon receipt to subcontract laboratory was 0:7°C versus 4:2°C in method - N/AW
subcontract lab noted COC and label did not match for "Date Sampled" subcontract lab received authorization to use COC date N/AW
2. All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors & sample sizes) estimated and flagged "Q"

Curtis & Tompkins SDG: 182802

Method Blank **EPA Method 8290**

Matrix: Soil QC Batch No.: 7397 ✓
 Sample Size: 10.0 g Date Analyzed DB-5: 10-Nov-05 Date Analyzed DB-225: NA
 Lab Sample: 0-MB001

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0727			13C-2,3,7,8-TCDD	78.6	40 - 135	
1,2,3,7,8-PeCDD	ND	0.0944			13C-1,2,3,7,8-PeCDD	83.0	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.127			13C-1,2,3,4,7,8-HxCDD	80.2	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.130			13C-1,2,3,6,7,8-HxCDD	77.9	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.129			13C-1,2,3,4,6,7,8-HpCDD	85.5	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.258			13C-OCDD	75.2	40 - 135	
OCDD	ND		0.776		13C-2,3,7,8-TCDF	75.5	40 - 135	
2,3,7,8-TCDF	ND	0.0780			13C-1,2,3,7,8-PeCDF	82.0	40 - 135	
1,2,3,7,8-PeCDF	ND	0.164			13C-2,3,4,7,8-PeCDF	80.5	40 - 135	
2,3,4,7,8-PeCDF	ND	0.144			13C-1,2,3,4,7,8-HxCDF	76.5	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0474			13C-1,2,3,6,7,8-HxCDF	84.3	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0432			13C-2,3,4,6,7,8-HxCDF	82.6	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0503			13C-1,2,3,7,8,9-HxCDF	92.4	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0378			13C-1,2,3,4,6,7,8-HpCDF	86.9	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND	0.108			13C-1,2,3,4,7,8,9-HpCDF	85.1	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.0755			13C-OCDF	77.0	40 - 135	
OCDF	ND	0.208			CRS 37Cl-2,3,7,8-TCDD	79.6	40 - 135	

Totals

Toxic Equivalent Quotient (TEQ) Data ^e	
TEQ (Min):	0
Total TCDD	ND
Total PeCDD	ND
Total HxCDD	ND
Total HpCDD	ND
Total TCDF	ND
Total PeCDF	ND
Total HxCDF	ND
Total HpCDF	ND

a. Sample specific estimated detection limit.
 b. Estimated maximum possible concentration.
 c. Method detection limit.
 d. Lower control limit - upper control limit.
 e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)

Analyst: MAS Approved By: Martha M. Maier 03-Apr-2006 15:50

OPR Results		EPA Method 8290			
Matrix:	Soil	QC Batch No.:	7397 ✓		
Sample Size:	10.0 g	Date Extracted:	8-Nov-05		
Lab Sample:	0-OPR001	Date Analyzed DB-5:	10-Nov-05		
		Date Analyzed DB-225:	NA		
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	7 - 13	IS 13C-2,3,7,8-TCDD	72.8	40 - 135
1,2,3,7,8-PeCDD	50.0	35 - 65	13C-1,2,3,7,8-PeCDD	80.8	40 - 135
1,2,3,4,7,8-HxCDD	50.0	35 - 65	13C-1,2,3,4,7,8-HxCDD	80.3	40 - 135
1,2,3,6,7,8-HxCDD	50.0	35 - 65	13C-1,2,3,6,7,8-HxCDD	81.2	40 - 135
1,2,3,7,8,9-HxCDD	50.0	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	82.3	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	35 - 65	13C-OCDD	73.1	40 - 135
OCDD	100	70 - 130	13C-2,3,7,8-TCDF	68.6	40 - 135
2,3,7,8-TCDF	10.0	7 - 13	13C-1,2,3,7,8-PeCDF	76.1	40 - 135
1,2,3,7,8-PeCDF	50.0	35 - 65	13C-2,3,4,7,8-PeCDF	74.0	40 - 135
2,3,4,7,8-PeCDF	50.0	35 - 65	13C-1,2,3,4,7,8-HxCDF	79.0	40 - 135
1,2,3,4,7,8-HxCDF	50.0	35 - 65	13C-1,2,3,6,7,8-HxCDF	84.3	40 - 135
1,2,3,6,7,8-HxCDF	50.0	35 - 65	13C-2,3,4,6,7,8-HxCDF	85.2	40 - 135
2,3,4,6,7,8-HxCDF	50.0	35 - 65	13C-1,2,3,7,8,9-HxCDF	82.1	40 - 135
1,2,3,7,8,9-HxCDF	50.0	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	72.5	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	75.4	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	35 - 65	13C-OCDF	70.9	40 - 135
OCDF	100	70 - 130	CRS 37Cl-2,3,7,8-TCDD	72.6	40 - 135

OK

OK

Analyst: MAS Approved By: Martha M. Maier 11-Nov-2005 15:02

OK

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

June 28, 2006

Alta Project I.D.: 26846

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the amended results for the one soil sample received at Alta Analytical Laboratory on October 28, 2005 under your Project Name "182802". This sample was extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

As requested by Ms. Kay Johnson, the datasheets now include the Toxic Equivalency (TEQ) as calculated using the WHO-1997 Toxic Equivalency Factors.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.



Section I: Sample Inventory Report

Date Received: 10/28/2005

Alta Lab. ID

Client Sample ID

26846-001

DP3.59-1

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900
(510) 486-0532

26846
0.2°C

Project Number: 182802
Site: Ft Bragg-Site Assessment

Subcontract Laboratory:
Alta Analytical Lab, Inc.
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 933-1640
ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker
*** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
DP3.59-1	10/10 11:40	Soil	8290	182390-004	

Notes:	Relinquished By:	Received By:
	<i>[Signature]</i>	<i>[Signature]</i>
	Date/Time:	Date/Time:
	10/27/05 1515	10/28/05 0910

Signature on this form constitutes a firm Purchase Order for the services requested above.
Page 1 of 1

SAMPLE LOG-IN CHECKLIST

Alta Project #: 26846

Samples Arrival:	Date/Time 10/28/05 0910	Initials: CASB	Location: WR-2
Logged In:	Date/Time 10/28/05 1200	Initials: CASB	Location: WR-2
Delivered By:	FedEx	UPS	Cal
			DHL
			Hand Delivered
			Other
Preservation:	Ice	Blue Ice	Dry Ice
			None
Temp °C	0.2	Time: 0915	Thermometer ID: DT-20

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill	✓		
Trk #	C10129000022527		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?	✓		
Drinking Water Sample?		✓	
Acceptable Preservation?	✓		

Preservation Info	COC	Sample Container	None
Shipping Container	Alta	Client	Return
			Dispose

Comments:

Chain of Custody Anomaly/Sample Acceptance Form

Client: Curtis & Tompkins, Ltd.
Contact: Lisa Brooker
Fax Number: 510-4860532

Project Number 26846
Date Received: Oct 28 2005
Documented by/date: ALD 10/28/05

Please review the following information and complete the Client Authorization section. To comply with NELAC regulations, we must receive authorization before proceeding with sample analysis.

Thank You. (Fax # 916-673-0106)

The following information or item is needed to proceed with analysis:

- Complete Chain-of-Custody
- Test Method Requested
- Analyte List Requested
- Preservative
- Sample Identification
- Sample Collection Date / Time
- Collector's Name
- Sample Type
- Sample Location

See below

The following anomalies were noted. Authorization is needed to proceed with the analysis.

Temperature outside $\pm 2^{\circ}\text{C}$ range Samples Affected: _____

Temperature outside _____ $^{\circ}\text{C}$	Ice present?	Yes	No
Sample ID Discrepancy Samples Affected	_____	_____	_____
Sample holding time missed Samples Affected	_____	_____	_____
Custody seals broken Samples Affected	_____	_____	_____
Insufficient Sample Size Samples Affected	_____	_____	_____
Sample Container(s) Broken Samples Affected	_____	_____	_____
Incorrect Container Type Samples Affected	_____	_____	_____

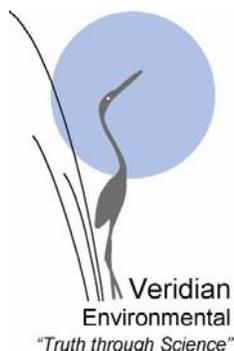
Other COC sample date 10/10/05
Label sample date 10/10/05

Client Authorization

Proceed With Analysis: (YES) NO Signature and Date W 11/1/05

Client Comments/Instructions: Use COC time per Carol Workman by email

ALTA Analytical Laboratory
El Dorado Hills, CA 96762



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT

***Georgia-Pacific
California Wood Products
Manufacturing Facility***

Laboratory Project ID:

- *Alta Analytical Laboratory, Inc.
#27617*
- *Curtis & Tompkins, Ltd.
#186053*

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on three soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-7.13-8	27617-001	27617	04/06/06	D
Soil	DP-7.14-7	27617-002	27617	04/06/06	D
Soil	DP-7.15-8	27617-003	27617	04/06/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the

qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results		✓		
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			✓	
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.2°C) of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^\circ\text{C}$. In addition, the samples were received in clear jars as opposed to amber jars as required by the method. These exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Qualification of the data was not warranted on this basis. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	<u>Concentration</u>
Total HxCDF	0.111 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J” on the qualified analytical result forms.

According to the laboratory, the concentrations of the following analytes in the samples listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers.

<u>Sample</u>	<u>Analyte</u>
DP-7.13-8	Total PeCDF
DP-7.15-8	Total HxCDF

Low percent solids were noted in the samples listed below. The data were not qualified on this basis.

<u>Sample</u>	<u>% Solids</u>
DP-7.13-8	27.9%
DP-7.14-7	20.1%
DP-7.15-8	29.4%

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J”.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified a few minor aspects of the analytical data that required qualification due to results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin

<u>Acronym</u>	<u>Definition</u>
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:



Tracy A. Young
Quality Assurance Chemist

Report Reviewed and Approved By:



William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A
QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP-7.13-8		EPA Method 8290					
Client Data		Sample Data		Laboratory Data			
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27617-001		
Project:	Ft Bragg-Site Assessment 186053	Sample Size:	14.2 g	QC Batch No.:	7960		
Date Collected:	6-Apr-06	%Solids:	27.9	Date Analyzed DB-5:	25-Apr-06		
Time Collected:	0850			Dates Analyzed DB-225:	26-Apr-06		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	37.7			13C-2,3,7,8-TCDD	67.7	40 - 135	
1,2,3,7,8-PeCDD	48.8			13C-1,2,3,7,8-PeCDD	61.7	40 - 135	
1,2,3,4,7,8-HxCDD	21.8			13C-1,2,3,4,7,8-HxCDD	74.3	40 - 135	
1,2,3,6,7,8-HxCDD	82.4			13C-1,2,3,6,7,8-HxCDD	77.5	40 - 135	
1,2,3,7,8,9-HxCDD	46.3			13C-1,2,3,4,6,7,8-HpCDD	76.5	40 - 135	
1,2,3,4,6,7,8-HpCDD	286			13C-OCDD	57.2	40 - 135	
OCDD	833			13C-2,3,7,8-TCDF	71.0	40 - 135	
2,3,7,8-TCDF	350			13C-1,2,3,7,8-PeCDF	66.5	40 - 135	
1,2,3,7,8-PeCDF	111			13C-2,3,4,7,8-PeCDF	66.9	40 - 135	
2,3,4,7,8-PeCDF	155			13C-1,2,3,4,7,8-HxCDF	73.2	40 - 135	
1,2,3,4,7,8-HxCDF	37.8			13C-1,2,3,6,7,8-HxCDF	72.4	40 - 135	
1,2,3,6,7,8-HxCDF	47.0			13C-2,3,4,6,7,8-HxCDF	73.8	40 - 135	
2,3,4,6,7,8-HxCDF	51.5			13C-1,2,3,7,8,9-HxCDF	68.1	40 - 135	
1,2,3,7,8,9-HxCDF	16.7			13C-1,2,3,4,6,7,8-HpCDF	67.7	40 - 135	
1,2,3,4,6,7,8-HpCDF	43.9			13C-1,2,3,4,7,8,9-HpCDF	67.0	40 - 135	
1,2,3,4,7,8,9-HpCDF	11.3			13C-OCDF	54.4	40 - 135	
OCDF	26.4			CRS 37Cl-2,3,7,8-TCDD	70.5	40 - 135	
Totals							
Total TCDD	632			Toxic Equivalent Quotient (TEQ) Data			
Total PeCDD	527			TEQ (Min): 238			
Total HxCDD	852			a. Sample specific estimated detection limit.			
Total HpCDD	532			b. Estimated maximum possible concentration.			
Total TCDF	5240			c. Method detection limit.			
Total PeCDF	1610		D	d. Lower control limit - upper control limit.			
Total HxCDF	471		B	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HpCDF	99.0						

Analyst: JMH

Approved By: William J. Luksemburg 29-Apr-2006 09:37

Sample ID: DP-7.14-7		EPA Method 8290			
Client Data		Sample Data		Laboratory Data	
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27617-002
Project:	Fit Bragg-Site Assessment 186053	Sample Size:	14.1 g	QC Batch No.:	7960
Date Collected:	6-Apr-06	%Solids:	20.1	Date Analyzed DB-5:	25-Apr-06
Time Collected:	1145			Date Analyzed DB-225:	26-Apr-06
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Labeled Standard	%R LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	13.3			13C-2,3,7,8-TCDD	78.7 40 - 135
1,2,3,7,8-PeCDD	14.9			13C-1,2,3,7,8-PeCDD	69.0 40 - 135
1,2,3,4,7,8-HxCDD	6.61	J	J	13C-1,2,3,4,7,8-HxCDD	79.6 40 - 135
1,2,3,6,7,8-HxCDD	66.2			13C-1,2,3,6,7,8-HxCDD	84.6 40 - 135
1,2,3,7,8,9-HxCDD	24.8			13C-1,2,3,4,6,7,8-HpCDD	79.0 40 - 135
1,2,3,4,6,7,8-HpCDD	358			13C-OCDD	58.4 40 - 135
OCDD	1830			13C-2,3,7,8-TCDF	82.8 40 - 135
2,3,7,8-TCDF	121			13C-1,2,3,7,8-PeCDF	75.4 40 - 135
1,2,3,7,8-PeCDF	33.6			13C-2,3,4,7,8-PeCDF	74.8 40 - 135
2,3,4,7,8-PeCDF	46.7			13C-1,2,3,4,7,8-HxCDF	77.9 40 - 135
1,2,3,4,7,8-HxCDF	10.9			13C-1,2,3,6,7,8-HxCDF	74.2 40 - 135
1,2,3,6,7,8-HxCDF	15.6			13C-2,3,4,6,7,8-HxCDF	78.9 40 - 135
2,3,4,6,7,8-HxCDF	16.7			13C-1,2,3,7,8,9-HxCDF	71.8 40 - 135
1,2,3,7,8,9-HxCDF	5.36	J	J	13C-1,2,3,4,6,7,8-HpCDF	74.5 40 - 135
1,2,3,4,6,7,8-HpCDF	69.9			13C-1,2,3,4,7,8,9-HpCDF	64.5 40 - 135
1,2,3,4,7,8,9-HpCDF	5.72	J	J	13C-OCDF	54.4 40 - 135
OCDF	100			CRS 37Cl-2,3,7,8-TCDD	79.1 40 - 135
Totals					
Total TCDD	163		166	Toxic Equivalent Quotient (TEQ) Data	e
Total PeCDD	132			TEQ (Min):	84.5
Total HxCDD	500			a. Sample specific estimated detection limit.	
Total HpCDD	761			b. Estimated maximum possible concentration.	
Total TCDF	1680			c. Method detection limit.	
Total PeCDF	556			d. Lower control limit - upper control limit.	
Total HxCDF	280		B	e. TEQ based on (1987) World Health Organization Toxic Equivalent Factors (WHO)	
Total HpCDF	183				

Analyst: JMH

Approved By: William J. Luksemburg 29-Apr-2006 09:37

Sample ID: **DP-7.15-8**

EPA Method 8290

Client Data		Sample Data		Laboratory Data			
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27617-003		
Project:	Ft Bragg-Site Assessment 186053	Sample Size:	14.3 g	QC Batch No.:	7960		
Date Collected:	6-Apr-06	%Solids:	29.4	Date Analyzed DB-5:	26-Apr-06		
Time Collected:	1429			Date Analyzed DB-225:	26-Apr-06		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	21.1			13C-2,3,7,8-TCDD	69.7	40 - 135	
1,2,3,7,8-PeCDD	43.9			13C-1,2,3,7,8-PeCDD	62.4	40 - 135	
1,2,3,4,7,8-HxCDD	30.1			13C-1,2,3,4,7,8-HxCDD	73.4	40 - 135	
1,2,3,6,7,8-HxCDD	45.9			13C-1,2,3,6,7,8-HxCDD	77.9	40 - 135	
1,2,3,7,8,9-HxCDD	42.1			13C-1,2,3,4,6,7,8-HpCDD	76.7	40 - 135	
1,2,3,4,6,7,8-HpCDD	420			13C-OCDD	59.3	40 - 135	
OCDD	2160			13C-2,3,7,8-TCDF	70.6	40 - 135	
2,3,7,8-TCDF	146			13C-1,2,3,7,8-PeCDF	63.0	40 - 135	
1,2,3,7,8-PeCDF	67.3			13C-2,3,4,7,8-PeCDF	66.9	40 - 135	
2,3,4,7,8-PeCDF	102			13C-1,2,3,4,7,8-HxCDF	72.2	40 - 135	
1,2,3,4,7,8-HxCDF	40.0			13C-1,2,3,6,7,8-HxCDF	70.3	40 - 135	
1,2,3,6,7,8-HxCDF	43.2			13C-2,3,4,6,7,8-HxCDF	74.9	40 - 135	
2,3,4,6,7,8-HxCDF	50.7			13C-1,2,3,7,8,9-HxCDF	67.4	40 - 135	
1,2,3,7,8,9-HxCDF	16.4			13C-1,2,3,4,6,7,8-HpCDF	70.6	40 - 135	
1,2,3,4,6,7,8-HpCDF	123			13C-1,2,3,4,7,8,9-HpCDF	67.4	40 - 135	
1,2,3,4,7,8,9-HpCDF	18.4			13C-OCDF	55.4	40 - 135	
OCDF	190			CRS 37Cl-2,3,7,8-TCDD	71.5	40 - 135	
Totals							
Total TCDD	444			Toxic Equivalent Quotient (TEQ) Data		c	
Total PeCDD	531			TEQ (Min):	167		
Total HxCDD	519			a. Sample specific estimated detection limit.			
Total HpCDD	711			b. Estimated maximum possible concentration.			
Total TCDF	2370			c. Method detection limit.			
Total PeCDF	1050			d. Lower control limit - upper control limit.			
Total HxCDF	480		B,D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HpCDF	287						

Analyst: JMH

Approved By: William J. Luksemburg 29-Apr-2006 09:37

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Reviewed By: Jays

Sample Collection Dates: 4/6/06

Approved By: WJK

Client: Acton Mickelson Environmental, Inc.

Completion Date: 7/7/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 27617

*Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	1	✓
Laboratory Method Blank Results	✓	2	✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓	3	✓
Verification of the EDD in XLS Format	✓		✓

Comments: 1. Temperature upon receipt at subcontract laboratory @ 0°C, less than 4±2°C as stated in method

Samples received in clear jars versus amber jars as presented in method
No qualification of data warranted for either exception.

2. See Blank Analysis Results page NOW
3. All results reported at concentrations less than lowest calibration level flagged if possible eliminated diphenoylether interferences for two different analytes.
Low percent solids noted in all three samples - NOW.

Curtis & Tompkins SDG: 186053

Method Blank		EPA Method 8290						
Matrix:	Soil	QC Batch No.:	7960	Lab Sample:	0-MB001			
Sample Size:	10.0 g	Date Extracted:	22-Apr-06	Date Analyzed DB-5:	25-Apr-06			
				Date Analyzed DB-225:	NA			
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0940			13C-2,3,7,8-TCDD	54.4	40 - 135	
1,2,3,7,8-PeCDD	ND	0.153			13C-1,2,3,7,8-PeCDD	49.6	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.167			13C-1,2,3,4,7,8-HxCDD	67.5	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.167			13C-1,2,3,6,7,8-HxCDD	71.3	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.162			13C-1,2,3,4,6,7,8-HpCDD	62.9	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.218			13C-OCDD	47.2	40 - 135	
OCDD	ND	0.716			13C-2,3,7,8-TCDF	53.8	40 - 135	
2,3,7,8-TCDF	ND	0.0997			13C-1,2,3,7,8-PeCDF	50.6	40 - 135	
1,2,3,7,8-PeCDF	ND	0.251			13C-2,3,4,7,8-PeCDF	52.7	40 - 135	
2,3,4,7,8-PeCDF	ND	0.237			13C-1,2,3,4,7,8-HxCDF	70.5	40 - 135	
1,2,3,4,7,8-HxCDF	ND		0.0673		13C-1,2,3,6,7,8-HxCDF	78.8	40 - 135	
1,2,3,6,7,8-HxCDF	ND		0.0799		13C-2,3,4,6,7,8-HxCDF	70.7	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0477			13C-1,2,3,7,8,9-HxCDF	58.0	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0846			13C-1,2,3,4,6,7,8-HpCDF	58.8	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND	0.217			13C-1,2,3,4,7,8,9-HpCDF	52.8	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.184			13C-OCDF	46.2	40 - 135	
OCDF	ND	0.393			CRS 37Cl-2,3,7,8-TCDD	64.7	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data			
Total TCDD	ND	0.0940			TEQ (Min):	0		
Total PeCDD	ND	0.153			a. Sample specific estimated detection limit.			
Total HxCDD	ND	0.165			b. Estimated maximum possible concentration.			
Total HpCDD	ND	0.218			c. Method detection limit.			
Total TCDF	ND	0.0997			d. Lower control limit - upper control limit.			
Total PeCDF	ND	0.244			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HxCDF	0.111		0.259					
Total HpCDF	ND	0.237						

Analyst: JMH

Approved By:

William J. Luksemburg 29-Apr-2006 09:37

OPR Results						EPA Method 8290			
Matrix:	Soil	QC Batch No.:	7960	Lab Sample:	0-OPR001	Date Analyzed DB-5:	25-Apr-06	Date Analyzed DB-225:	NA
Sample Size:	10.0 g	Date Extracted:	22-Apr-06						
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL			
2,3,7,8-TCDD	10.0	9.98	7 - 13	IS 13C-2,3,7,8-TCDD	63.9	40 - 135			
1,2,3,7,8-PeCDD	50.0	53.0	35 - 65	13C-1,2,3,7,8-PeCDD	53.5	40 - 135			
1,2,3,4,7,8-HxCDD	50.0	50.0	35 - 65	13C-1,2,3,4,7,8-HxCDD	77.5	40 - 135			
1,2,3,6,7,8-HxCDD	50.0	50.8	35 - 65	13C-1,2,3,6,7,8-HxCDD	81.4	40 - 135			
1,2,3,7,8,9-HxCDD	50.0	47.4	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	74.6	40 - 135			
1,2,3,4,6,7,8-HpCDD	50.0	51.6	35 - 65	13C-OCDD	46.8	40 - 135			
OCDD	100	100	70 - 130	13C-2,3,7,8-TCDF	64.3	40 - 135			
2,3,7,8-TCDF	10.0	9.89	7 - 13	13C-1,2,3,7,8-PeCDF	57.5	40 - 135			
1,2,3,7,8-PeCDF	50.0	48.7	35 - 65	13C-2,3,4,7,8-PeCDF	57.7	40 - 135			
2,3,4,7,8-PeCDF	50.0	50.2	35 - 65	13C-1,2,3,4,7,8-HxCDF	80.9	40 - 135			
1,2,3,4,7,8-HxCDF	50.0	52.3	35 - 65	13C-1,2,3,6,7,8-HxCDF	91.2	40 - 135			
1,2,3,6,7,8-HxCDF	50.0	50.9	35 - 65	13C-2,3,4,6,7,8-HxCDF	80.9	40 - 135			
2,3,4,6,7,8-HxCDF	50.0	50.3	35 - 65	13C-1,2,3,7,8,9-HxCDF	71.4	40 - 135			
1,2,3,7,8,9-HxCDF	50.0	51.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	72.5	40 - 135			
1,2,3,4,6,7,8-HpCDF	50.0	49.6	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	77.3	40 - 135			
1,2,3,4,7,8,9-HpCDF	50.0	49.5	35 - 65	13C-OCDF	52.6	40 - 135			
OCDF	100	94.5	70 - 130	CRS 37Cl-2,3,7,8-TCDD	64.0	40 - 135			

Analyst: JMH

Approved By: William J. Luksemburg 29-Apr-2006 09:37

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

April 29, 2006

Alta Project I.D.: 27617

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the three soil samples received at Alta Analytical Laboratory on April 20, 2006 under your Project Name "Ft Bragg-Site Assessment 186053". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



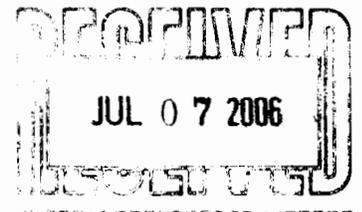
Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable standards. This report should not be reproduced except in full without the written approval of ALTA.



Section I: Sample Inventory Report

Date Received: 4/20/2006

<u>Alta Lab. ID</u>	<u>Client Sample ID</u>
27617-001	DP-7.13-8
27617-002	DP-7.14-7
27617-003	DP-7.15-8



Curtis & Tompkins, Ltd.
 Analytical Laboratories, Since 1878
 2323 Fifth Street
 Berkeley, CA 94710
 (510) 486-0900
 (510) 486-0532

27617

0.2°C

Project Number: 186053
 Site: Ft Bragg-Site Assessment

Subcontract Laboratory:
 Alta Analytical Lab, Inc.
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 933-1640
 ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker

***. Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
DP-7.13-8	04/06 08:50	Soil	8290	186053-001	
DP-7.14-7	04/06 11:45	Soil	8290	186053-004	
DP-7.15-8	04/06 14:29	Soil	8290	186053-007	

Please provide an EDO 4/19/06

Notes:	Requisitioned By:	Received By:
	<i>Jan Lewis</i>	<i>Stephanie Benedict</i>
	Date/Time:	Date/Time:
	<i>4/19/06 1416</i>	<i>04/20/06 0905</i> <i>04/20/06</i>

Signature on this form constitutes a firm Purchase Order for the services requested above.

SAMPLE LOG-IN CHECKLIST

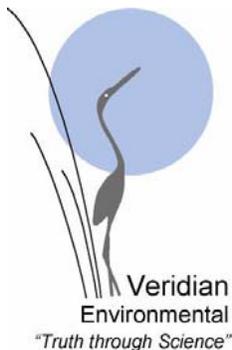
Alta Project #: 27617

Samples Arrival:	Date/Time 4/20/06 0905	Initials: CBB	Location: WR-2			
			Shelf/Rack:			
Logged In:	Date/Time 4/21/06 0651	Initials: CBB	Location: WR-2			
			Shelf/Rack: D-3			
Delivered By:	FedEx	UPS	Cal	DHL	Hand Delivered	Other
Preservation:	Ice	Blue Ice	Dry Ice	None		
Temp °C	0.2	Time:	0915	Thermometer ID: DT-20		

		YES	NO	NA	
Adequate Sample Volume Received?		✓			
Holding Time Acceptable?		✓			
Shipping Container(s) Intact?		✓			
Shipping Custody Seals Intact?				✓	
Shipping Documentation Present?		✓			
Airbill	Trk # C10129000026090	✓			
Sample Container Intact?		✓			
Sample Custody Seals Intact?				✓	
Chain of Custody / Sample Documentation Present?		✓			
COC Anomaly/Sample Acceptance Form completed?			✓		
If Chlorinated or Drinking Water Samples, Acceptable Preservation?				✓	
Na ₂ S ₂ O ₃ Preservation Documented?	COC	Sample Container	None		
Shipping Container	Alta	Client	Retain	Return	Dispose

Comments:

sample containers are clear jars



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT
*Georgia-Pacific
California Wood Products
Manufacturing Facility*

Laboratory Project IDs

- *Alta Analytical Laboratory, Inc.
#27620*
- *Curtis & Tompkins, Ltd.
#186026*

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on two soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-7.11-10	27620-001	27620	04/05/06	D
Soil	DP-7.12-10	27620-002	27620	04/05/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data

end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results		✓		
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			✓	
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.2°C) of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^\circ\text{C}$. In addition, one sample, DP-7.11-10 was received in a clear, glass jar and the other sample, DP-7.12-10, was received in a clear, plastic tube as opposed to amber jars as required by the method. These exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at a trace level in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Qualification of the data was not warranted on this basis. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	<u>Concentration</u>
Total HxCDF	0.111 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J” on the qualified analytical result forms.

According to the laboratory, the concentrations of the following analytes in the samples listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers.

<u>Sample</u>	<u>Analyte</u>
DP-7.11-10	Total PeCDF, 1,2,3,6,7,8-HxCDF, and Total HxCDF

It should be noted that sample DP-7.11-10 displayed low percent solids (32.5%). The data were not qualified on this basis.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J”.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified minor aspects of the analytical data that required qualification due to results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins

<u>Acronym</u>	<u>Definition</u>
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:



Tracy A. Young
Quality Assurance Chemist

Report Reviewed and Approved By:



William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP-7.11-10

EPA Method 8290

Client Data

Name: Curtis & Tompkins, Ltd.
 Project: Ft Bragg-Site Assessment 186026
 Date Collected: 5-Apr-06
 Time Collected: 0930

Sample Data

Matrix: Soil
 Sample Size: 26.2 g
 %Solids: 32.5

Laboratory Data

Lab Sample: 27620-001 Date Received: 20-Apr-06
 QC Batch No.: 7960 Date Extracted: 22-Apr-06
 Date Analyzed DB-5: 26-Apr-06 Dates Analyzed DB-225: 26-Apr-06

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	26.7				13C-2,3,7,8-TCDD	70.8	40 - 135	
1,2,3,7,8-PeCDD	24.7				13C-1,2,3,7,8-PeCDD	63.7	40 - 135	
1,2,3,4,7,8-HxCDD	14.0				13C-1,2,3,4,7,8-HxCDD	79.1	40 - 135	
1,2,3,6,7,8-HxCDD	26.9				13C-1,2,3,6,7,8-HxCDD	80.8	40 - 135	
1,2,3,7,8,9-HxCDD	26.3				13C-1,2,3,4,6,7,8-HpCDD	87.2	40 - 135	
1,2,3,4,6,7,8-HpCDD	728				13C-OCDD	74.2	40 - 135	
OCDD	6090				13C-2,3,7,8-TCDF	70.6	40 - 135	
2,3,7,8-TCDF	244				13C-1,2,3,7,8-PeCDF	66.7	40 - 135	
1,2,3,7,8-PeCDF	69.8				13C-2,3,4,7,8-PeCDF	65.3	40 - 135	
2,3,4,7,8-PeCDF	90.2				13C-1,2,3,4,7,8-HxCDF	80.5	40 - 135	
1,2,3,4,7,8-HxCDF	23.7				13C-1,2,3,6,7,8-HxCDF	86.9	40 - 135	
1,2,3,6,7,8-HxCDF	25.8			D	13C-2,3,4,6,7,8-HxCDF	78.1	40 - 135	
2,3,4,6,7,8-HxCDF	28.5				13C-1,2,3,7,8,9-HxCDF	74.3	40 - 135	
1,2,3,7,8,9-HxCDF	8.01				13C-1,2,3,4,6,7,8-HpCDF	82.1	40 - 135	
1,2,3,4,6,7,8-HpCDF	162				13C-1,2,3,4,7,8,9-HpCDF	81.8	40 - 135	
1,2,3,4,7,8,9-HpCDF	19.9				13C-OCDF	70.5	40 - 135	
OCDF	605				37Cl-2,3,7,8-TCDD	68.6	40 - 135	

Toxic Equivalent Quotient (TEQ) Data^e

Totals								
Total TCDD	389				TEQ (Min): 149			
Total PeCDD	265							
Total HxCDD	222							
Total HpCDD	1080							
Total TCDF	3550							
Total PeCDF	902			D				
Total HxCDF	327			B,D				
Total HpCDF	509							

- a. Sample specific estimated detection limit.
- b. Estimated maximum possible concentration.
- c. Method detection limit.
- d. Lower control limit - upper control limit.
- e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)

Analyst: DMS

Approved By: William J. Luksemburg 29-Apr-2006 10:20

Sample ID: DP-7.12-10

EPA Method 8290

Client Data

Name: Curtis & Tompkins, Ltd.
 Project: Ft Bragg-Site Assessment 186026
 Date Collected: 5-Apr-06
 Time Collected: 1535

Sample Data

Matrix: Soil
 Sample Size: 12.3 g
 %Solids: 80.1

Laboratory Data

Lab Sample: 27620-002
 QC Batch No.: 7960 ✓
 Date Analyzed DB-5: 26-Apr-06
 Date Received: 20-Apr-06
 Date Extracted: 22-Apr-06
 Date Analyzed DB-225: NA

Analyte **Conc. (pg/g)** **DL^a** **EMPC^b** **Qualifiers**

2,3,7,8-TCDD	ND	0.154		
1,2,3,7,8-PeCDD	ND	0.148		
1,2,3,4,7,8-HxCDD	ND	0.212		
1,2,3,6,7,8-HxCDD	ND	0.211		
1,2,3,7,8,9-HxCDD	ND	0.205		
1,2,3,4,6,7,8-HpCDD	1.17 J			J
OCDD	10.6			
2,3,7,8-TCDF	0.299 J			J
1,2,3,7,8-PeCDF	ND	0.233		
2,3,4,7,8-PeCDF	ND	0.239		
1,2,3,4,7,8-HxCDF	ND	0.0815		
1,2,3,6,7,8-HxCDF	ND	0.0789		
2,3,4,6,7,8-HxCDF	ND	0.0888		
1,2,3,7,8,9-HxCDF	ND	0.146		
1,2,3,4,6,7,8-HpCDF	0.195 J			J
1,2,3,4,7,8,9-HpCDF	ND	0.239		
OCDF	1.04 J			J

Labeled Standard **%R** **LCL-UCL^d** **Qualifiers**

IS 13C-2,3,7,8-TCDD	65.1	40 - 135	
13C-1,2,3,7,8-PeCDD	58.3	40 - 135	
13C-1,2,3,4,7,8-HxCDD	71.9	40 - 135	
13C-1,2,3,6,7,8-HxCDD	74.6	40 - 135	
13C-1,2,3,4,6,7,8-HpCDD	68.3	40 - 135	
13C-OCDD	56.8	40 - 135	
13C-2,3,7,8-TCDF	67.1	40 - 135	
13C-1,2,3,7,8-PeCDF	63.4	40 - 135	
13C-2,3,4,7,8-PeCDF	62.0	40 - 135	
13C-1,2,3,4,7,8-HxCDF	76.3	40 - 135	
13C-1,2,3,6,7,8-HxCDF	76.9	40 - 135	
13C-2,3,4,6,7,8-HxCDF	75.9	40 - 135	
13C-1,2,3,7,8,9-HxCDF	64.7	40 - 135	
13C-1,2,3,4,6,7,8-HpCDF	69.2	40 - 135	
13C-1,2,3,4,7,8,9-HpCDF	60.6	40 - 135	
13C-OCDF	54.4	40 - 135	
CRS 37Cl-2,3,7,8-TCDD	68.0	40 - 135	

Toxic Equivalent Quotient (TEQ) Data^e

TEQ (Min):	0.0447
a. Sample specific estimated detection limit	
b. Estimated maximum possible concentration	
c. Method detection limit	
d. Lower control limit - upper control limit	
e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	

Totals

Total TCDD	ND	0.154
Total PeCDD	ND	0.148
Total HxCDD	ND	0.209
Total HpCDD	1.17	
Total TCDF	1.25	
Total PeCDF	ND	0.236
Total HxCDF	ND	0.0952
Total HpCDF	0.195	

Analyst: DMS

Approved By: William J. Luksemburg 29-Apr-2006 10:20

ATTACHMENT B
SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Reviewed By: Jdejs

Sample Collection Dates: 4/05/06

Approved By: wge

Client: Acton Mickelson Environmental, Inc.

Completion Date: 7/11/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 27020
 *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	1.	✓
Laboratory Method Blank Results	✓	2.	✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓	3.	✓
Verification of the EDD in XLS Format	✓		✓

Comments: 1. Temperature upon receipt to subcontract laboratory below range 4-20. One sample received in clear glass jar and one sample received in clear plastic tube versus amber jars specified in the method.
2. See Blank Analysis Results form. Acceptable with Discussion - NDW
3. All results reported at concentrations less than lowest calibration level should be considered estimated & flagged "g".
Possible chlorinated diphenyls noted in one or more compounds for sample DP 711-10.
Low percent solids (32.5%) noted for DP 711-10. NDW
 Curtis & Tompkins SDG: 186026

Method Blank		EPA Method 8290				
Matrix:	Soil	QC Batch No.:	7960 ✓	Lab Sample:	0-MB001	
Sample Size:	10.0 g	Date Extracted:	22-Apr-06	Date Analyzed DB-5:	25-Apr-06	
				Date Analyzed DB-225:	NA	
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.0940		IS 13C-2,3,7,8-TCDD	54.4	40 - 135
1,2,3,7,8-PeCDD	ND	0.153		13C-1,2,3,7,8-PeCDD	49.6	40 - 135
1,2,3,4,7,8-HxCDD	ND	0.167		13C-1,2,3,4,7,8-HxCDD	67.5	40 - 135
1,2,3,6,7,8-HxCDD	ND	0.167		13C-1,2,3,6,7,8-HxCDD	71.3	40 - 135
1,2,3,7,8,9-HxCDD	ND	0.162		13C-1,2,3,4,6,7,8-HpCDD	62.9	40 - 135
1,2,3,4,6,7,8-HpCDD	ND	0.218		13C-OCDD	47.2	40 - 135
OCDD	ND	0.716		13C-2,3,7,8-TCDF	53.8	40 - 135
2,3,7,8-TCDF	ND	0.0997		13C-1,2,3,7,8-PeCDF	50.6	40 - 135
1,2,3,7,8-PeCDF	ND	0.251		13C-2,3,4,7,8-PeCDF	52.7	40 - 135
2,3,4,7,8-PeCDF	ND	0.237		13C-1,2,3,4,7,8-HxCDF	70.5	40 - 135
1,2,3,4,7,8-HxCDF	ND		0.0673	13C-1,2,3,6,7,8-HxCDF	78.8	40 - 135
1,2,3,6,7,8-HxCDF	ND		0.0799	13C-2,3,4,6,7,8-HxCDF	70.7	40 - 135
2,3,4,6,7,8-HxCDF	ND	0.0477		13C-1,2,3,7,8,9-HxCDF	58.0	40 - 135
1,2,3,7,8,9-HxCDF	ND	0.0846		13C-1,2,3,4,6,7,8-HpCDF	58.8	40 - 135
1,2,3,4,6,7,8-HpCDF	ND	0.217		13C-1,2,3,4,7,8,9-HpCDF	52.8	40 - 135
1,2,3,4,7,8,9-HpCDF	ND	0.184		13C-OCDF	46.2	40 - 135
OCDF	ND	0.393		CRS 37Cl-2,3,7,8-TCDD	64.7	40 - 135
Totals						
Total TCDD	ND	0.0940		Toxic Equivalent Quotient (TEQ) Data		
Total PeCDD	ND	0.153		TEQ (Min): 0		
Total HxCDD	ND	0.165		a. Sample specific estimated detection limit.		
Total HpCDD	ND	0.218		b. Estimated maximum possible concentration.		
Total TCDF	ND	0.0997		c. Method detection limit.		
Total PeCDF	ND	0.244		d. Lower control limit - upper control limit.		
Total HxCDF	0.111		0.259	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)		
Total HpCDF	ND	0.237				

Analyst: JMH

Approved By:

William J. Luksemburg 29-Apr-2006 10:20

OPR Results		EPA Method 8290				
Matrix:	Soil	QC Batch No.:	7960 ✓	Lab Sample:	0-OPR001	
Sample Size:	10.0 g	Date Extracted:	22-Apr-06	Date Analyzed DB-5:	25-Apr-06	
				Date Analyzed DB-225:	NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	9.98	7 - 13	<u>IS</u> 13C-2,3,7,8-TCDD	63.9	40 - 135
1,2,3,7,8-PeCDD	50.0	53.0	35 - 65	13C-1,2,3,7,8-PeCDD	53.5	40 - 135
1,2,3,4,7,8-HxCDD	50.0	50.0	35 - 65	13C-1,2,3,4,7,8-HxCDD	77.5	40 - 135
1,2,3,6,7,8-HxCDD	50.0	50.8	35 - 65	13C-1,2,3,6,7,8-HxCDD	81.4	40 - 135
1,2,3,7,8,9-HxCDD	50.0	47.4	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	74.6	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	51.6	35 - 65	13C-OCDD	46.8	40 - 135
OCDD	100	100	70 - 130	13C-2,3,7,8-TCDF	64.3	40 - 135
2,3,7,8-TCDF	10.0	9.89	7 - 13	13C-1,2,3,7,8-PeCDF	57.5	40 - 135
1,2,3,7,8-PeCDF	50.0	48.7	35 - 65	13C-2,3,4,7,8-PeCDF	57.7	40 - 135
2,3,4,7,8-PeCDF	50.0	50.2	35 - 65	13C-1,2,3,4,7,8-HxCDF	80.9	40 - 135
1,2,3,4,7,8-HxCDF	50.0	52.3	35 - 65	13C-1,2,3,6,7,8-HxCDF	91.2	40 - 135
1,2,3,6,7,8-HxCDF	50.0	50.9	35 - 65	13C-2,3,4,6,7,8-HxCDF	80.9	40 - 135
2,3,4,6,7,8-HxCDF	50.0	50.3	35 - 65	13C-1,2,3,7,8,9-HxCDF	71.4	40 - 135
1,2,3,7,8,9-HxCDF	50.0	51.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	72.5	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	49.6	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	77.3	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	49.5	35 - 65	13C-OCDF	52.6	40 - 135
OCDF	100	94.5	70 - 130	<u>CRS</u> 37Cl-2,3,7,8-TCDD	64.0	40 - 135

Analyst: JMH

all ok

Approved By: William J. Luksemburg 29-Apr-2006 10:20

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

April 29, 2006

Alta Project I.D.: 27620

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the two soil samples received at Alta Analytical Laboratory on April 20, 2006 under your Project Name "Ft Bragg-Site Assessment 186026". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.



Section I: Sample Inventory Report

Date Received: 4/20/2006

Alta Lab. ID

Client Sample ID

27620-001

DP-7.11-10

27620-002

DP-7.12-10

Curtis & Tompkins, Ltd.
 Analytical Laboratories, Since 1878
 2323 Fifth Street
 Berkeley, CA 94710
 (510) 486-0900
 (510) 486-0532

27620

Project Number: 186026
 Site: Ft Bragg-Site Assessment

0.2°C

Subcontract Laboratory:
 Alta Analytical Lab, Inc.
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 933-1640
 ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker
 *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
DP-7.11-10	04/05 09:30	Soil	8290	186026-006	
DP-7.12-10	04/05 15:35	Soil	8290	186026-008	

Please provide an EDD 4/19/06 LBS

Notes:	Relinquished By:	Received By:
	<i>A. Kern</i>	<i>Bethma G. Benedict</i>
	Date/Time: 4/19/06 1416	Date/Time: 04/20/06 0905
		<i>1215</i> 04/20/06

Signature on this form constitutes a firm Purchase Order for the services requested above.

SAMPLE LOG-IN CHECKLIST

Alta Project #: 27620

Samples Arrival:	Date/Time <u>4/20/06 0905</u>	Initials: <u>YLB</u>	Location: <u>WR-2</u> Shelf/Rack: _____			
Logged In:	Date/Time <u>4/21/06 0732</u>	Initials: <u>YLB</u>	Location: <u>WR-2</u> Shelf/Rack: <u>D-3</u>			
Delivered By:	FedEx	UPS	<u>Cal</u>	DHL	Hand Delivered	Other
Preservation:	<u>Ice</u>	Blue Ice	Dry Ice	None		
Temp °C	<u>0.2</u>	Time:	<u>0915</u>	Thermometer ID: DT-20		

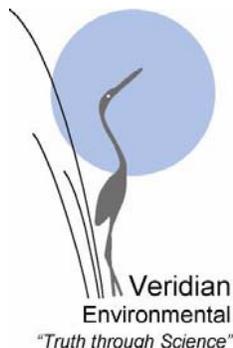
*Temp (4.2°C)
21/04/06*

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill	✓		
Trk # <u>C 10129000026090</u>			
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓
Na ₂ S ₂ O ₃ Preservation Documented?		COC	Sample Container <u>None</u>
Shipping Container	Alta <u>Client</u>	Retain	<u>Return</u> Dispose

Comments:

*Sample DP-7.11-10 is in a clear plastic tube
Sample DP-7.12-10 is in a clear glass jar*

*vs. above
21/04/06*



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT
*Georgia-Pacific
California Wood Products
Manufacturing Facility*
Laboratory Project IDs

- *Alta Analytical Laboratory, Inc.*
#27739
- *Curtis & Tompkins, Ltd.*
#187066

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on one aqueous sample collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the sample was analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Aqueous	LOG POND 8 OUTFALL S	27739-001	27739	5/24/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data

that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The sample was analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results	✓			
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds	✓			
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.5°C) of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^\circ\text{C}$. In addition, the samples were received in clear jars as opposed to amber jars as required by the method. These exceptions do not warrant qualification of the data.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

The data were acceptable as reported. No qualification was warranted.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has not identified any aspect of the analytical data that required qualification. To confidently use any of the analytical data within these sample sets, the data user should understand the limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery

<u>Acronym</u>	<u>Definition</u>
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:

Handwritten signature of Ellen E. Seeley in black ink.

Ellen E. Seeley
Quality Assurance Chemist

Report Reviewed and Approved By:

Handwritten signature of William G. Kay II in black ink.

William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: LOG POND 8 OUTFALLS

EPA Method 8290

Client Data		Sample Data		Laboratory Data	
Name:	Curtis & Tompkins, Ltd.	Matrix:	Aqueous	Lab Sample:	27739-001
Project:	Ft Bragg-Site Assessment	Sample Size:	1.02 L	QC Batch No.:	8052
Date Collected:	24-May-06			Date Analyzed DB-5:	28-May-06
Time Collected:	1555			Date Analyzed DB-225:	NA
				Date Received:	26-May-06
				Date Extracted:	26-May-06

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.765			67.9	40 - 135	
1,2,3,7,8-PeCDD	ND	0.925			72.3	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.738			64.3	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.769			61.1	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.762			67.0	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.792			41.1	40 - 135	
OCDD	ND	2.02			72.6	40 - 135	
2,3,7,8-TCDF	ND	1.11			70.8	40 - 135	
1,2,3,7,8-PeCDF	ND	0.704			74.5	40 - 135	
2,3,4,7,8-PeCDF	ND	0.638			63.8	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.584			58.7	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.527			63.0	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.649			68.7	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.836			56.3	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND	0.971			71.5	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.820			51.1	40 - 135	
OCDF	ND	2.11			91.8	40 - 135	

Totals		Toxic Equivalent Quotient (TEQ) Data ^e	
Total TCDD	ND	TEQ (Min):	0
Total PeCDD	ND	a. Sample specific estimated detection limit.	
Total HxCDD	ND	b. Estimated maximum possible concentration.	
Total HpCDD	ND	c. Method detection limit.	
Total TCDF	ND	d. Lower control limit - upper control limit.	
Total PeCDF	ND	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	
Total HxCDF	ND		
Total HpCDF	ND		

Analyst: JMH

Approved By: Martha M. Maier 30-May-2006 11:42

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Reviewed By: E. Sealey

Sample Collection Dates: 5/24/06

Approved By: WJK

Client: Acton Mickelson Environmental, Inc.

Completion Date: 7/11/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 27739

*Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail	Problems Identified	Support Documentation Attachments
	Check if Yes or Footnote Letter for Comments Below	Check if Yes or Footnote Number for Comments Below	Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓		✓
Laboratory Method Blank Results	✓		✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓		✓
Verification of the EDD in XLS Format	✓		✓

Comments: _____

Curtis & Tompkins SDG: 187066

Method Blank		EPA Method 8290				
Matrix:	Aqueous	QC Batch No.:	8052	Lab Sample:	0-MB001	
Sample Size:	1.00 L	Date Extracted:	26-May-06	Date Analyzed DB-5:	27-May-06	
				Date Analyzed DB-225:	NA	
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.615		IS 13C-2,3,7,8-TCDD	75.1	40 - 135
1,2,3,7,8-PeCDD	ND	0.710		13C-1,2,3,7,8-PeCDD	87.0	40 - 135
1,2,3,4,7,8-HxCDD	ND	0.579		13C-1,2,3,4,7,8-HxCDD	67.4	40 - 135
1,2,3,6,7,8-HxCDD	ND	0.641		13C-1,2,3,6,7,8-HxCDD	61.9	40 - 135
1,2,3,7,8,9-HxCDD	ND	0.616		13C-1,2,3,4,6,7,8-HpCDD	73.5	40 - 135
1,2,3,4,6,7,8-HpCDD	ND	0.671		13C-OCDD	41.5	40 - 135
OCDD	ND	1.67		13C-2,3,7,8-TCDF	82.7	40 - 135
2,3,7,8-TCDF	ND	0.522		13C-1,2,3,7,8-PeCDF	84.6	40 - 135
1,2,3,7,8-PeCDF	ND	0.651		13C-2,3,4,7,8-PeCDF	86.9	40 - 135
2,3,4,7,8-PeCDF	ND	0.622		13C-1,2,3,4,7,8-HxCDF	62.9	40 - 135
1,2,3,4,7,8-HxCDF	ND	0.438		13C-1,2,3,6,7,8-HxCDF	54.1	40 - 135
1,2,3,6,7,8-HxCDF	ND	0.458		13C-2,3,4,6,7,8-HxCDF	67.5	40 - 135
2,3,4,6,7,8-HxCDF	ND	0.445		13C-1,2,3,7,8,9-HxCDF	70.3	40 - 135
1,2,3,7,8,9-HxCDF	ND	0.620		13C-1,2,3,4,6,7,8-HpCDF	59.8	40 - 135
1,2,3,4,6,7,8-HpCDF	ND	2.69		13C-1,2,3,4,7,8,9-HpCDF	81.6	40 - 135
1,2,3,4,7,8,9-HpCDF	ND	2.00		13C-OCDF	53.8	40 - 135
OCDF	ND	1.16		CRS 37Cl-2,3,7,8-TCDD	88.7	40 - 135
Totals				Toxic Equivalent Quotient (TEQ) Data	e	
Total TCDD	ND	0.615		TEQ (Min):	0	
Total PeCDD	ND	0.710		a. Sample specific estimated detection limit.		
Total HxCDD	ND	0.612		b. Estimated maximum possible concentration.		
Total HpCDD	ND	0.671		c. Method detection limit.		
Total TCDF	ND	0.522		d. Lower control limit - upper control limit.		
Total PeCDF	ND	0.636		e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)		
Total HxCDF	ND	0.490				
Total HpCDF	ND	2.34				

Analyst: JMH

Approved By: Martha M. Maier 30-May-2006 11:42

EPA Method 8290

OPR Results

Matrix: Aqueous		QC Batch No.: 8052	Lab Sample: 0-OPR001
Sample Size: 1.00 L		Date Extracted: 26-May-06	Date Analyzed DB-5: 27-May-06
		Date Analyzed DB-225: NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits
2,3,7,8-TCDD	10.0	12.8	7 - 13
1,2,3,7,8-PeCDD	50.0	64.2	35 - 65
1,2,3,4,7,8-HxCDD	50.0	63.6	35 - 65
1,2,3,6,7,8-HxCDD	50.0	63.0	35 - 65
1,2,3,7,8,9-HxCDD	50.0	64.8	35 - 65
1,2,3,4,6,7,8-HpCDD	50.0	63.7	35 - 65
OCDD	100	128	70 - 130
2,3,7,8-TCDF	10.0	12.3	7 - 13
1,2,3,7,8-PeCDF	50.0	62.4	35 - 65
2,3,4,7,8-PeCDF	50.0	60.1	35 - 65
1,2,3,4,7,8-HxCDF	50.0	62.8	35 - 65
1,2,3,6,7,8-HxCDF	50.0	61.4	35 - 65
2,3,4,6,7,8-HxCDF	50.0	62.1	35 - 65
1,2,3,7,8,9-HxCDF	50.0	62.2	35 - 65
1,2,3,4,6,7,8-HpCDF	50.0	64.4	35 - 65
1,2,3,4,7,8,9-HpCDF	50.0	63.9	35 - 65
OCDF	100	126	70 - 130

Analyst: JMH

Approved By: Martha M. Maier 30-May-2006 10:03

Labeled Standard

IS 13C-2,3,7,8-TCDD

13C-1,2,3,7,8-PeCDD

13C-1,2,3,4,7,8-HxCDD

13C-1,2,3,6,7,8-HxCDD

13C-1,2,3,4,6,7,8-HpCDD

13C-OCDD

13C-2,3,7,8-TCDF

13C-1,2,3,7,8-PeCDF

13C-2,3,4,7,8-PeCDF

13C-1,2,3,4,7,8-HxCDF

13C-1,2,3,6,7,8-HxCDF

13C-2,3,4,6,7,8-HxCDF

13C-1,2,3,7,8,9-HxCDF

13C-1,2,3,4,6,7,8-HpCDF

13C-OCDF

CRS 37Cl-2,3,7,8-TCDD

%R

74.0

82.1

68.6

65.1

85.5

58.2

79.3

78.3

83.5

61.8

56.8

67.1

79.2

72.2

94.7

68.5

86.9

LCL-UCL

40 - 135

40 - 135

40 - 135

40 - 135

40 - 135

40 - 135

40 - 135

40 - 135

40 - 135

40 - 135

40 - 135

40 - 135

40 - 135

40 - 135

40 - 135

40 - 135

40 - 135

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 30, 2006

Alta Project I.D.: 27739

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the one aqueous sample received at Alta Analytical Laboratory on May 26, 2006 under your Project Name "Ft Bragg-Site Assessment". This sample was extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.



Section I: Sample Inventory Report

Date Received: 5/26/2006

Alta Lab. ID

Client Sample ID

27739-001

LOG POND 8 OUTFALL S

Curtis & Tompkins, Ltd.
 Analytical Laboratories, Since 1878
 2323 Fifth Street
 Berkeley, CA 94710
 (510) 486-0900
 (510) 486-0532

RUSH

27739 0.5°C

Project Number: 187066
 Site: Ft Bragg-Site Assessment

Subcontract Laboratory:
 Alta Analytical Lab, Inc.
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 933-1640
 ATTN: Martha

Results due: 05/30/06

Report Level: II

Please send report to: Lisa Brooker

*** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
LOG POND 8 OUTFALL S	05/24 15:55	Water	8290	187066-001	Dioxins & Furans

Notes:	Relinquished By:	Received By:
	<i>[Signature]</i>	<i>[Signature]</i>
	Date/Time:	Date/Time:
	3/25/06 1628	5/26/06 0935

Signature on this form constitutes a firm Purchase Order for the services requested above.

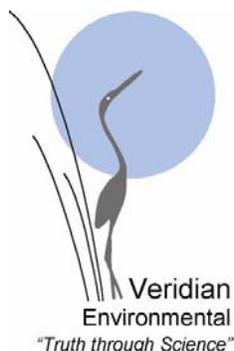
SAMPLE LOG-IN CHECKLIST

Alta Project #: 27739

Samples Arrival:	Date/Time 5/26/06 0935	Initials: UBSB	Location: WR-2
Logged In:	Date/Time 5/26/06 1015	Initials: UBSB	Location: WR-2 Shelf/Rack: B-5
Delivered By:	FedEx	UPS	Cal
Preservation:	Ice	Blue Ice	Dry Ice
Temp °C	0.5	Time: 0945	Thermometer ID: DT-20

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill			
Trk #	C10129 000027444		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?			✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓
Na ₂ S ₂ O ₃ Preservation Documented?			None
Shipping Container	Alta	Client	Return
		Retain	Dispose

Comments:



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT

***Georgia-Pacific
California Wood Products
Manufacturing Facility***

Laboratory Project IDs

- *Alta Analytical Laboratory, Inc.
#26833*
- *Curtis & Tompkins, Ltd.
#182694*

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on two aqueous samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Aqueous	DP3.59DT5.5	26833-001	26833	10/10/05	D
Aqueous	DP3.60DT6.0	26833-002	26833	10/10/05	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data

end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results	✓			
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			✓	
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis and Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (1.7°C) of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^\circ\text{C}$. These exceptions do not warrant qualification of the data.

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J” on the qualified analytical result forms.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J”.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified minor aspects of the analytical data that required qualification due to results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

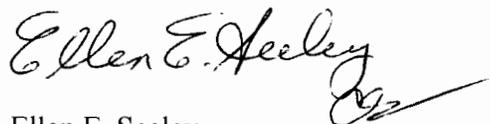
U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:



Ellen E. Seeley
Quality Assurance Chemist

Report Reviewed and Approved By:



William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: **DP3.59DTS.5**

EPA Method 8290

Client Data

Name: Curtis & Tompkins, Ltd.
 Project: Ft Bragg-Site Assessment No. 182694
 Date Collected: 10-Oct-05
 Time Collected: 1420

Sample Data

Matrix: Aqueous
 Sample Size: 1.06 L

Laboratory Data

Lab Sample: 26833-001 Date Received: 25-Oct-05
 QC Batch No.: 7403 Date Extracted: 9-Nov-05
 Date Analyzed DB-5: 12-Nov-05 Date Analyzed DB-225: NA

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	1.82			13C-2,3,7,8-TCDD	70.6	40 - 135	
1,2,3,7,8-PeCDD	ND	2.11			13C-1,2,3,7,8-PeCDD	74.5	40 - 135	
1,2,3,4,7,8-HxCDD	ND	3.11			13C-1,2,3,4,7,8-HxCDD	69.0	40 - 135	
1,2,3,6,7,8-HxCDD	10.5	J		J	13C-1,2,3,6,7,8-HxCDD	77.7	40 - 135	
1,2,3,7,8,9-HxCDD	ND	5.37			13C-1,2,3,4,6,7,8-HpCDD	78.1	40 - 135	
1,2,3,4,6,7,8-HpCDD	191				13C-OCDD	57.1	40 - 135	
OCDD	1600				13C-2,3,7,8-TCDF	68.0	40 - 135	
2,3,7,8-TCDF	ND	1.45			13C-1,2,3,7,8-PeCDF	67.8	40 - 135	
1,2,3,7,8-PeCDF	ND	3.04			13C-2,3,4,7,8-PeCDF	67.1	40 - 135	
2,3,4,7,8-PeCDF	ND	2.66			13C-1,2,3,4,7,8-HxCDF	60.1	40 - 135	
1,2,3,4,7,8-HxCDF	3.01			J	13C-1,2,3,6,7,8-HxCDF	65.3	40 - 135	
1,2,3,6,7,8-HxCDF	3.88			J	13C-2,3,4,6,7,8-HxCDF	69.3	40 - 135	
2,3,4,6,7,8-HxCDF	3.55			J	13C-1,2,3,7,8,9-HxCDF	71.5	40 - 135	
1,2,3,7,8,9-HxCDF	3.60			J	13C-1,2,3,4,6,7,8-HpCDF	71.9	40 - 135	
1,2,3,4,6,7,8-HpCDF	64.5				13C-1,2,3,4,7,8,9-HpCDF	73.0	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	4.85			13C-OCDF	60.1	40 - 135	
OCDF	116				CRS 37Cl-2,3,7,8-TCDD	68.4	40 - 135	

Toxic Equivalent Quotient (TEQ) Data^e

TEQ (Min):	5.18
Total TCDD	1.82
Total PeCDD	2.11
Total HxCDD	48.8
Total HpCDD	355
Total TCDF	ND
Total PeCDF	15.7
Total HxCDF	78.7
Total HpCDF	148

a. Sample specific estimated detection limit.
 b. Estimated maximum possible concentration.
 c. Method detection limit.
 d. Lower control limit - upper control limit.
 e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)

Analyst: MAS

Approved By: Martha M. Maier 03-Apr-2006 15:31

Sample ID: DP3.60DT6.0

EPA Method 8290

Client Data

Name: Curtis & Tompkins, Ltd.
 Project: Ft Bragg-Site Assessment No. 182694
 Date Collected: 10-Oct-05
 Time Collected: 1510

Sample Data

Matrix: Aqueous
 Sample Size: 1.04 L

Laboratory Data

Lab Sample: 26833-002
 QC Batch No.: 7403
 Date Analyzed DB-5: 12-Nov-05
 Date Received: 25-Oct-05
 Date Extracted: 9-Nov-05
 Date Analyzed DB-225: NA

Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	1.48			13C-2,3,7,8-TCDD	72.4	40 - 135	
1,2,3,7,8-PeCDD	ND	1.78			13C-1,2,3,7,8-PeCDD	72.5	40 - 135	
1,2,3,4,7,8-HxCDD	20.1			J	13C-1,2,3,4,7,8-HxCDD	68.0	40 - 135	
1,2,3,6,7,8-HxCDD	17.2			J	13C-1,2,3,6,7,8-HxCDD	72.8	40 - 135	
1,2,3,7,8,9-HxCDD	4.14			J	13C-1,2,3,4,6,7,8-HpCDD	72.1	40 - 135	
1,2,3,4,6,7,8-HpCDD	522				13C-OCDD	56.6	40 - 135	
OCDD	6460				13C-2,3,7,8-TCDF	73.0	40 - 135	
2,3,7,8-TCDF	ND	1.48			13C-1,2,3,7,8-PeCDF	68.2	40 - 135	
1,2,3,7,8-PeCDF	ND	3.55			13C-2,3,4,7,8-PeCDF	68.6	40 - 135	
2,3,4,7,8-PeCDF	ND	3.30			13C-1,2,3,4,7,8-HxCDF	57.3	40 - 135	
1,2,3,4,7,8-HxCDF	ND		4.20		13C-1,2,3,6,7,8-HxCDF	61.5	40 - 135	
1,2,3,6,7,8-HxCDF	4.87			J	13C-2,3,4,6,7,8-HxCDF	64.5	40 - 135	
2,3,4,6,7,8-HxCDF	6.87			J	13C-1,2,3,7,8,9-HxCDF	68.0	40 - 135	
1,2,3,7,8,9-HxCDF	ND	2.45			13C-1,2,3,4,6,7,8-HpCDF	64.1	40 - 135	
1,2,3,4,6,7,8-HpCDF	262				13C-1,2,3,4,7,8,9-HpCDF	59.6	40 - 135	
1,2,3,4,7,8,9-HpCDF	12.6			J	13C-OCDF	54.7	40 - 135	
OCDF	861				CRS 37Cl-2,3,7,8-TCDD	73.9	40 - 135	

Toxic Equivalent Quotient (TEQ) Data^e

TEQ (Min):	14.0
a. Sample specific estimated detection limit. b. Estimated maximum possible concentration. c. Method detection limit. d. Lower control limit - upper control limit. e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	
Total TCDD	ND
Total PeCDD	ND
Total HxCDD	76.6
Total HpCDD	892
Total TCDF	ND
Total PeCDF	20.3
Total HxCDF	255
Total HpCDF	866
Totals	
Total TCDD	1.48
Total PeCDD	1.78
Total HxCDD	76.6
Total HpCDD	892
Total TCDF	ND
Total PeCDF	20.3
Total HxCDF	255
Total HpCDF	866

Analyst: MAS

Approved By: Martha M. Maier 03-Apr-2006 15:31

ATTACHMENT B
SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Reviewed By: E. Seely

Sample Collection Dates: 10/10/05

Approved By: WJK

Client: Acton Mickelson Environmental, Inc.

Completion Date: 7/11/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 26833
 *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	(1)	✓
Laboratory Method Blank Results	✓		✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓	(2)	✓
Verification of the EDD in XLS Format	✓		✓

Comments:

(1) Temperature upon receipt at subcontract laboratory below range of 4 ± 2°C.

(2) Sample concentrations as reported were below the calibration range of the instrument.

Curtis & Tompkins SDG: 182388

Method Blank		EPA Method 8290						
Matrix: Aqueous	QC Batch No.: 7403	Lab Sample: 0-MB001	Date Analyzed DB-5: 12-Nov-05	Date Analyzed DB-225: NA				
Sample Size: 1.00 L	Date Extracted: 9-Nov-05							
Analyte	Conc. (pg/L)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	2.45			IS 13C-2,3,7,8-TCDD	57.2	40 - 135	
1,2,3,7,8-PeCDD	ND	1.98			13C-1,2,3,7,8-PeCDD	60.9	40 - 135	
1,2,3,4,7,8-HxCDD	ND	3.51			13C-1,2,3,4,7,8-HxCDD	55.6	40 - 135	
1,2,3,6,7,8-HxCDD	ND	3.42			13C-1,2,3,6,7,8-HxCDD	63.8	40 - 135	
1,2,3,7,8,9-HxCDD	ND	3.47			13C-1,2,3,4,6,7,8-HpCDD	63.1	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	2.40			13C-OCDD	46.9	40 - 135	
OCDD	ND	9.40			13C-2,3,7,8-TCDF	60.4	40 - 135	
2,3,7,8-TCDF	ND	1.67			13C-1,2,3,7,8-PeCDF	54.7	40 - 135	
1,2,3,7,8-PeCDF	ND	2.56			13C-2,3,4,7,8-PeCDF	58.0	40 - 135	
2,3,4,7,8-PeCDF	ND	2.16			13C-1,2,3,4,7,8-HxCDF	49.5	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.951			13C-1,2,3,6,7,8-HxCDF	54.7	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.934			13C-2,3,4,6,7,8-HxCDF	56.6	40 - 135	
2,3,4,6,7,8-HxCDF	ND	1.01			13C-1,2,3,7,8,9-HxCDF	57.2	40 - 135	
1,2,3,7,8,9-HxCDF	ND	1.68			13C-1,2,3,4,6,7,8-HpCDF	55.3	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND	1.77			13C-1,2,3,4,7,8,9-HpCDF	59.6	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	2.19			13C-OCDF	51.7	40 - 135	
OCDF	ND	6.94			CRS 37Cl-2,3,7,8-TCDD	68.2	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data^e			
Total TCDD	ND	2.45			TEQ (Min):	0		
Total PeCDD	ND	1.98			a. Sample specific estimated detection limit.			
Total HxCDD	ND	3.46			b. Estimated maximum possible concentration.			
Total HpCDD	ND	2.40			c. Method detection limit.			
Total TCDF	ND	1.67			d. Lower control limit - upper control limit.			
Total PeCDF	ND	2.35			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HxCDF	ND	1.11						
Total HpCDF	ND	1.96						

Analyst: MAS

Approved By: Martha M. Maier 03-Apr-2006 15:31

OPR Results		EPA Method 8290				
Matrix:	Aqueous	QC Batch No.:	7403	Lab Sample:	0-OPR001	
Sample Size:	1.00 L	Date Extracted:	9-Nov-05	Date Analyzed DB-5:	12-Nov-05	
				Date Analyzed DB-225:	NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	10.9	7 - 13	<u>IS</u> 13C-2,3,7,8-TCDD	48.1	40 - 135
1,2,3,7,8-PeCDD	50.0	53.0	35 - 65	13C-1,2,3,7,8-PeCDD	50.8	40 - 135
1,2,3,4,7,8-HxCDD	50.0	52.5	35 - 65	13C-1,2,3,4,7,8-HxCDD	54.2	40 - 135
1,2,3,6,7,8-HxCDD	50.0	51.1	35 - 65	13C-1,2,3,6,7,8-HxCDD	62.0	40 - 135
1,2,3,7,8,9-HxCDD	50.0	53.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	57.1	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	51.0	35 - 65	13C-OCDD	47.5	40 - 135
OCDD	100	104	70 - 130	13C-2,3,7,8-TCDF	52.7	40 - 135
2,3,7,8-TCDF	10.0	10.2	7 - 13	13C-1,2,3,7,8-PeCDF	47.6	40 - 135
1,2,3,7,8-PeCDF	50.0	53.3	35 - 65	13C-2,3,4,7,8-PeCDF	51.0	40 - 135
2,3,4,7,8-PeCDF	50.0	53.6	35 - 65	13C-1,2,3,4,7,8-HxCDF	48.7	40 - 135
1,2,3,4,7,8-HxCDF	50.0	52.7	35 - 65	13C-1,2,3,6,7,8-HxCDF	54.0	40 - 135
1,2,3,6,7,8-HxCDF	50.0	51.6	35 - 65	13C-2,3,4,6,7,8-HxCDF	59.9	40 - 135
2,3,4,6,7,8-HxCDF	50.0	52.1	35 - 65	13C-1,2,3,7,8,9-HxCDF	57.0	40 - 135
1,2,3,7,8,9-HxCDF	50.0	51.6	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	52.0	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	51.4	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	52.8	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	52.7	35 - 65	13C-OCDF	48.2	40 - 135
OCDF	100	100	70 - 130	<u>CRS</u> 37Cl-2,3,7,8-TCDD	68.1	40 - 135

Analyst: MAS

Approved By: Martha M. Maier 14-Nov-2005 08:11

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

April 03, 2006

Alta Project I.D.: 26833

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the amended results for the two aqueous samples received at Alta Analytical Laboratory on October 25, 2005 under your Project Name "Ft Bragg-Site Assessment", Project No. 182694. These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

As requested by Ms. Kay Johnson, the datasheets now include the Toxic Equivalency (TEQ) as calculated using the WHO-1997 Toxic Equivalency Factors.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.



Section I: Sample Inventory Report

Date Received: 10/25/2005

Alta Lab. ID

Client Sample ID

26833-001

DP3.59DT5.5

26833-002

DP3.60DT6.0

Curtis & Tompkins, Ltd.
 Analytical Laboratories, Since 1878
 2323 Fifth Street
 Berkeley, CA 94710
 (510) 486-0900
 (510) 486-0532

26833

1.7°C

Project Number: 182694
 Site: Ft Bragg-Site Assessment

Subcontract Laboratory:
 Alta Analytical Lab, Inc.
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 933-1640
 ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker
 *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
DP3.59DT5.5	10/10 14:20	Water	8290	182388-006	
DP3.60DT6.0	10/10 15:10	Water	8290	182388-007	

Notes:	Relinquished By:	Received By:
	<i>James Lewis</i>	<i>Stina J. Brooker</i>
	Date/Time: 10/24/05 1600	Date/Time: 10/25/05 0925

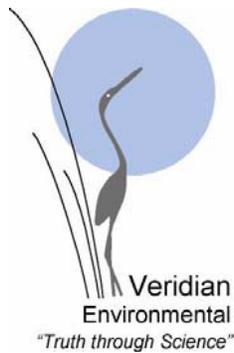
Signature on this form constitutes a firm Purchase Order for the services requested above.
 Page 1 of 1

SAMPLE LOG-IN CHECKLIST

Alta Project No.: 26833

Samples Arrival:	Date/Time 10/25/05 0925	Initials: ASB	Location: WR-2			
Logged In:	Date/Time 10/25/05 1233	Initials: ASB	Location: WR-2			
Delivered By:	FedEx	UPS	<u>Cal</u>	DHL	Hand Delivered	Other
Preservation:	<u>Ice</u>	Blue Ice	Dry Ice		None	
Temp °C	1.7°C		Time:	0950		
			YES	NO	NA	
Adequate Sample Volume Received?			✓			
Holding Time Acceptable?			✓			
Shipping Container(s) Intact?			✓			
Shipping Custody Seals Intact?					✓	
Shipping Documentation Present?			✓			
Airbill	Trk # C101290022395		✓			
Sample Container Intact?			✓			
Sample Custody Seals Intact?					✓	
Chain of Custody / Sample Documentation Present?			✓			
Shipping Container		Alta	<u>Client</u>	Retain	<u>Return</u>	Dispose
COC Anomaly/Sample Acceptance Form completed?				✓		
Drinking Water Sample?			✓			
Acceptable Preservation?			✓			
Preservation Info			COC	Sample Container	<u>None</u>	

Comments:



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT

***Georgia-Pacific
California Wood Products
Manufacturing Facility***

Laboratory Project IDs

- *Alta Analytical Laboratory, Inc.
#26839*
- *Curtis & Tompkins, Ltd.
#182724*

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on two soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	AS7.1	26839-001	26839	10/24/05	D
Soil	AS7.2	26839-002	26839	10/24/05	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data

end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results	✓			
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds		✓		
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis and Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.8°C) of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^\circ\text{C}$. These exceptions do not warrant qualification of the data.

Identification and Quantitation of Target Compounds

According to the laboratory, the concentrations of the following analytes in the samples listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers.

<u>Sample</u>	<u>Analyte</u>
AS7.1	1,2,3,6,7,8-HxCDF, Total HxCDF, Total TCDF, and Total PeCDF
AS7.2	1,2,3,6,7,8-HxCDF, Total HxCDF, Total TCDF, and Total PeCDF

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

The data were acceptable as reported and warranted no qualification.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

The data were acceptable as reported and warranted no qualification. To confidently use any of the analytical data within these sample sets, the data user should understand the limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

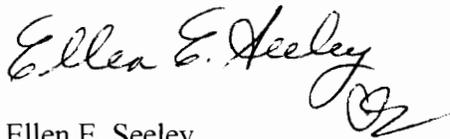
U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:



Ellen E. Seeley
Quality Assurance Chemist

Report Reviewed and Approved By:



William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: AS7.1		EPA Method 8290						
Client Data		Laboratory Data		Sample Data				
Name:	Curtis & Tompkins, Ltd.	Lab Sample:	26839-001	Date Received:	26-Oct-05			
Project:	Ft. Bragg-Site Assessment No. 182724	QC Batch No.:	7397	Date Extracted:	8-Nov-05			
Date Collected:	24-Oct-05	Date Analyzed DB-5:	10-Nov-05	Dates Analyzed DB-225:	11-Nov-05			
Time Collected:	1010							
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	124				IS 13C-2,3,7,8-TCDD	61.9	40 - 135	
1,2,3,7,8-PeCDD	230				13C-1,2,3,7,8-PeCDD	67.7	40 - 135	
1,2,3,4,7,8-HxCDD	159				13C-1,2,3,4,7,8-HxCDD	70.7	40 - 135	
1,2,3,6,7,8-HxCDD	237				13C-1,2,3,6,7,8-HxCDD	68.8	40 - 135	
1,2,3,7,8,9-HxCDD	222				13C-1,2,3,4,6,7,8-HpCDD	90.9	40 - 135	
1,2,3,4,6,7,8-HpCDD	1020				13C-OCDD	93.4	40 - 135	
OCDD	1060				13C-2,3,7,8-TCDF	59.5	40 - 135	
2,3,7,8-TCDF	982				13C-1,2,3,7,8-PeCDF	64.0	40 - 135	
1,2,3,7,8-PeCDF	494				13C-2,3,4,7,8-PeCDF	60.7	40 - 135	
2,3,4,7,8-PeCDF	695				13C-1,2,3,4,7,8-HxCDF	65.7	40 - 135	
1,2,3,4,7,8-HxCDF	230				13C-1,2,3,6,7,8-HxCDF	71.6	40 - 135	
1,2,3,6,7,8-HxCDF	260			D	13C-2,3,4,6,7,8-HxCDF	71.3	40 - 135	
2,3,4,6,7,8-HxCDF	309				13C-1,2,3,7,8,9-HxCDF	73.2	40 - 135	
1,2,3,7,8,9-HxCDF	108				13C-1,2,3,4,6,7,8-HpCDF	68.9	40 - 135	
1,2,3,4,6,7,8-HpCDF	290				13C-1,2,3,4,7,8,9-HpCDF	90.3	40 - 135	
1,2,3,4,7,8,9-HpCDF	92.0				13C-OCDF	84.4	40 - 135	
OCDF	109				CRS 37Cl-2,3,7,8-TCDD	63.7	40 - 135	
Totals								
Total TCDD	3650				TEQ (Min):	992		
Total PeCDD	3760				a. Sample specific estimated detection limit.			
Total HxCDD	3540				b. Estimated maximum possible concentration.			
Total HpCDD	1680				c. Method detection limit.			
Total TCDF	16300			D	d. Lower control limit - upper control limit.			
Total PeCDF	6790			D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HxCDF	2420			D				
Total HpCDF	653			D				

Analyst: MAS

Approved By: Martha M. Maier 03-Apr-2006 15:35

EPA Method 8290

Sample ID: AS7.2

Client Data		Sample Data		Laboratory Data				
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	26839-002			
Project:	Ft. Bragg-Site Assessment No. 182724	Sample Size:	15.7 g	QC Batch No.:	7397			
Date Collected:	24-Oct-05	%Solids:	63.0	Date Analyzed DB-5:	10-Nov-05			
Time Collected:	1020			Dates Analyzed DB-225:	11-Nov-05			
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	146				IS 13C-2,3,7,8-TCDD	69.7	40 - 135	
1,2,3,7,8-PeCDD	154				13C-1,2,3,7,8-PeCDD	77.6	40 - 135	
1,2,3,4,7,8-HxCDD	66.4				13C-1,2,3,4,7,8-HxCDD	72.1	40 - 135	
1,2,3,6,7,8-HxCDD	68.7				13C-1,2,3,6,7,8-HxCDD	74.1	40 - 135	
1,2,3,7,8,9-HxCDD	69.5				13C-1,2,3,4,6,7,8-HpCDD	84.7	40 - 135	
1,2,3,4,6,7,8-HpCDD	195				13C-OCDD	80.2	40 - 135	
OCDD	233				13C-2,3,7,8-TCDF	68.1	40 - 135	
2,3,7,8-TCDF	1110				13C-1,2,3,7,8-PeCDF	72.6	40 - 135	
1,2,3,7,8-PeCDF	420				13C-2,3,4,7,8-PeCDF	68.5	40 - 135	
2,3,4,7,8-PeCDF	533				13C-1,2,3,4,7,8-HxCDF	71.8	40 - 135	
1,2,3,4,7,8-HxCDF	120				13C-1,2,3,6,7,8-HxCDF	72.2	40 - 135	
1,2,3,6,7,8-HxCDF	138			D	13C-2,3,4,6,7,8-HxCDF	73.4	40 - 135	
2,3,4,6,7,8-HxCDF	145				13C-1,2,3,7,8,9-HxCDF	78.2	40 - 135	
1,2,3,7,8,9-HxCDF	46.2				13C-1,2,3,4,6,7,8-HpCDF	79.1	40 - 135	
1,2,3,4,6,7,8-HpCDF	88.7				13C-1,2,3,4,7,8,9-HpCDF	78.5	40 - 135	
1,2,3,4,7,8,9-HpCDF	23.9				13C-OCDF	74.0	40 - 135	
OCDF	24.1				CRS 37Cl-2,3,7,8-TCDD	69.8	40 - 135	
Totals								
Total TCDD	2170				TEQ (Min):	766		
Total PeCDD	1540				a. Sample specific estimated detection limit.			
Total HxCDD	938				b. Estimated maximum possible concentration.			
Total HpCDD	343				c. Method detection limit.			
Total TCDF	16300			D	d. Lower control limit - upper control limit.			
Total PeCDF	5200			D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HxCDF	1220			D				
Total HpCDF	188			D				

Analyst: MAS

Approved By: Martha M. Maier 03-Apr-2006 15:35

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Reviewed By: E. Seely

Sample Collection Dates: 10/24/05

Approved By: WJK

Client: Acton Mickelson Environmental, Inc.

Completion Date: 7/11/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 26839
 *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	(1)	✓
Laboratory Method Blank Results	✓		✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓	(2)	✓
Verification of the EDD in XLS Format	✓		✓

Comments:

(1) Temperature upon receipt to subcontract laboratory below range of $4 \pm 2^{\circ}C$.

(2) Biphenyl ether interference was observed in one or more samples.

Curtis & Tompkins SDG: 182724

Method Blank				EPA Method 8290					
Matrix:	Soil	QC Batch No.:	7397	Lab Sample:	0-MB001	Date Analyzed DB-5:	10-Nov-05	Date Analyzed DB-225:	NA
Sample Size:	10.0 g	Date Extracted:	8-Nov-05						
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers	
2,3,7,8-TCDD	ND	0.0727			13C-2,3,7,8-TCDD	78.6	40 - 135		
1,2,3,7,8-PeCDD	ND	0.0944			13C-1,2,3,7,8-PeCDD	83.0	40 - 135		
1,2,3,4,7,8-HxCDD	ND	0.127			13C-1,2,3,4,7,8-HxCDD	80.2	40 - 135		
1,2,3,6,7,8-HxCDD	ND	0.130			13C-1,2,3,6,7,8-HxCDD	77.9	40 - 135		
1,2,3,7,8,9-HxCDD	ND	0.129			13C-1,2,3,4,6,7,8-HpCDD	85.5	40 - 135		
1,2,3,4,6,7,8-HpCDD	ND	0.258			13C-OCDD	75.2	40 - 135		
OCDD	ND		0.776		13C-2,3,7,8-TCDF	75.5	40 - 135		
2,3,7,8-TCDF	ND	0.0780			13C-1,2,3,7,8-PeCDF	82.0	40 - 135		
1,2,3,7,8-PeCDF	ND	0.164			13C-2,3,4,7,8-PeCDF	80.5	40 - 135		
2,3,4,7,8-PeCDF	ND	0.144			13C-1,2,3,4,7,8-HxCDF	76.5	40 - 135		
1,2,3,4,7,8-HxCDF	ND	0.0474			13C-1,2,3,6,7,8-HxCDF	84.3	40 - 135		
1,2,3,6,7,8-HxCDF	ND	0.0432			13C-2,3,4,6,7,8-HxCDF	82.6	40 - 135		
2,3,4,6,7,8-HxCDF	ND	0.0503			13C-1,2,3,7,8,9-HxCDF	92.4	40 - 135		
1,2,3,7,8,9-HxCDF	ND	0.0378			13C-1,2,3,4,6,7,8-HpCDF	86.9	40 - 135		
1,2,3,4,6,7,8-HpCDF	ND	0.108			13C-1,2,3,4,7,8,9-HpCDF	85.1	40 - 135		
1,2,3,4,7,8,9-HpCDF	ND	0.0755			13C-OCDF	77.0	40 - 135		
OCDF	ND	0.208			CRS 37Cl-2,3,7,8-TCDD	79.6	40 - 135		
Totals				Toxic Equivalent Quotient (TEQ) Data^e					
Total TCDD	ND	0.0727			TEQ (Min):	0			
Total PeCDD	ND	0.0944							a. Sample specific estimated detection limit.
Total HxCDD	ND	0.129							b. Estimated maximum possible concentration.
Total HpCDD	ND	0.258							c. Method detection limit.
Total TCDF	ND	0.0780							d. Lower control limit - upper control limit.
Total PeCDF	ND	0.153							e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)
Total HxCDF	ND	0.0510							
Total HpCDF	ND	0.129							

Analyst: MAS

Approved By: Martha M. Maier 03-Apr-2006 15:35

OPR Results		EPA Method 8290				
Matrix:	Soil	QC Batch No.:	7397	Lab Sample:	0-OPR001	
Sample Size:	10.0 g	Date Extracted:	8-Nov-05	Date Analyzed DB-5:	10-Nov-05	
				Date Analyzed DB-225:	NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	10.6	7 - 13	<u>IS</u> 13C-2,3,7,8-TCDD	72.8	40 - 135
1,2,3,7,8-PeCDD	50.0	53.8	35 - 65	13C-1,2,3,7,8-PeCDD	80.8	40 - 135
1,2,3,4,7,8-HxCDD	50.0	54.5	35 - 65	13C-1,2,3,4,7,8-HxCDD	80.3	40 - 135
1,2,3,6,7,8-HxCDD	50.0	53.8	35 - 65	13C-1,2,3,6,7,8-HxCDD	81.2	40 - 135
1,2,3,7,8,9-HxCDD	50.0	56.4	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	82.3	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	54.9	35 - 65	13C-OCDD	73.1	40 - 135
OCDD	100	111	70 - 130	13C-2,3,7,8-TCDF	68.6	40 - 135
2,3,7,8-TCDF	10.0	10.7	7 - 13	13C-1,2,3,7,8-PeCDF	76.1	40 - 135
1,2,3,7,8-PeCDF	50.0	56.1	35 - 65	13C-2,3,4,7,8-PeCDF	74.0	40 - 135
2,3,4,7,8-PeCDF	50.0	56.5	35 - 65	13C-1,2,3,4,7,8-HxCDF	79.0	40 - 135
1,2,3,4,7,8-HxCDF	50.0	52.0	35 - 65	13C-1,2,3,6,7,8-HxCDF	84.3	40 - 135
1,2,3,6,7,8-HxCDF	50.0	52.5	35 - 65	13C-2,3,4,6,7,8-HxCDF	85.2	40 - 135
2,3,4,6,7,8-HxCDF	50.0	53.3	35 - 65	13C-1,2,3,7,8,9-HxCDF	82.1	40 - 135
1,2,3,7,8,9-HxCDF	50.0	52.6	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	72.5	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	53.7	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	75.4	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	54.7	35 - 65	13C-OCDF	70.9	40 - 135
OCDF	100	105	70 - 130	<u>CRS</u> 37Cl-2,3,7,8-TCDD	72.6	40 - 135

Analyst: MAS

Approved By: Martha M. Maier 14-Nov-2005 07:05

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

April 05, 2006

Alta Project I.D.: 26839

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the amended results for the two soil samples received at Alta Analytical Laboratory on October 26, 2005 under your Project Name "Ft Bragg-Site Assessment", Project No. 182724. These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

As requested by Ms. Kay Johnson, the datasheets now include the Toxic Equivalency (TEQ) as calculated using the WHO-1997 Toxic Equivalency Factors.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.



Section I: Sample Inventory Report

Date Received: 10/26/2005

<u>Alta Lab. ID</u>	<u>Client Sample ID</u>
26839-001	AS7.1
26839-002	AS7.2

Curtis & Tompkins, Ltd.
 Analytical Laboratories, Since 1878
 2323 Fifth Street
 Berkeley, CA 94710
 (510) 486-0900
 (510) 486-0532

26839
 0.8°C

Project Number: 182724
 Site: Ft Bragg-Site Assessment

Subcontract Laboratory:
 Alta Analytical Lab, Inc.
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 933-1640
 ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker

*** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
AS7.1	10/24 10:10	Soil	8290	182724-003	Dioxins & Furans
AS7.2	10/24 10:20	Soil	8290	182724-004	Dioxins & Furans

Notes: CALIFORNIA OVERNIGHT C10129000022410	Relinquished By: <i>Ruby A</i>	Received By: <i>Bettina A Benedict</i>
	Date/Time: 10/25/05 15:02	Date/Time: 10/26/05 1005

Signature on this form constitutes a firm Purchase Order for the services requested above.
 Page 1 of 1

SAMPLE LOG-IN CHECKLIST

Alta Project No.: 26839

Samples Arrival:	Date/Time 10/26/05 1005	Initials: BBB	Location: WR-2
Logged In:	Date/Time 10/26/05 1118	Initials: BBB	Location: WR-2
Delivered By:	FedEx	UPS	<u>Cal</u>
Preservation:	<u>Ice</u>	<u>Blue Ice</u>	Dry Ice
Temp °C	0.8°C	Time:	1020
	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?			
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill Trk #	C101290022410	✓	
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?			✓
Shipping Container	Alta	<u>Client</u>	Retain
COC Anomaly/Sample Acceptance Form completed?	✓		<u>Return</u>
Drinking Water Sample?			✓
Acceptable Preservation?	✓		
Preservation Info		COC	Sample Container
			<u>None</u>

Comments:

Lab ID: 182724-004
 Client ID: AS7.2
 Lab ID: 182724-003
 Client ID: ~~AS7.2~~ BBB
 AS7.1

Chain of Custody Anomaly/Sample Acceptance Form

Client: Curtis & Tompkins, Ltd.
Contact: Lisa Brooker
Fax Number: 510-4860532

Project Number 26839
Date Received: Oct 26 2005
Documented by/date: 10/26/05 [Signature]

Please review the following information and complete the Client Authorization section. To comply with NELAC regulations, we must receive authorization before proceeding with sample analysis.

Thank You. (Fax # 916-673-0106)

The following information or item is needed to proceed with analysis:

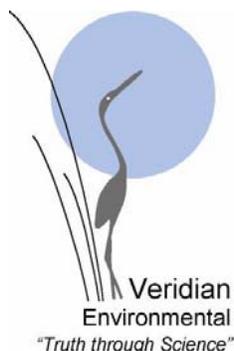
- Complete Chain-of-Custody
- Test Method Requested
- Analyte List Requested
- Preservative
- Sample Identification
- Sample Collection Date / Time
- Collector's Name
- Sample Type
- Sample Location

The following anomalies were noted. Authorization is needed to proceed with the analysis.

Temperature outside $\pm 2^{\circ}\text{C}$ range	Samples Affected:	_____	
Temperature outside _____ $^{\circ}\text{C}$	Ice present?	Yes	No
Sample ID Discrepancy	Samples Affected	_____	
Sample holding time missed	Samples Affected	_____	
Custody seals broken	Samples Affected	_____	
Insufficient Sample Size	Samples Affected	_____	
Sample Container(s) Broken	Samples Affected	_____	
Incorrect Container Type	Samples Affected	_____	
Other	_____		

Client Authorization	
Proceed With Analysis: <u>YES</u>	NO Signature and Date <u>[Signature] 11/14/05</u>
Client Comments/Instructions: <u>COC faxed 10/26/05</u>	

ALTA Analytical Laboratory
El Dorado Hills, CA 96762



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT
Georgia-Pacific
California Wood Products
Manufacturing Facility
Laboratory Project IDs

- *Alta Analytical Laboratory, Inc.*
#27272
- *Curtis & Tompkins, Ltd.*
#184796

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on two soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP10.7-5	27272-001	27272	01/25/06	D
Soil	DP10.9-9.5	27272-002	27272	01/25/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next

to the results on the laboratory analytical report forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical results forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results	✓			
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			✓	
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.6°C) of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^\circ\text{C}$. In addition, the samples were received in clear jars as opposed to amber jars as required by the method. These exceptions do not warrant qualification of the data.

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J” on the qualified analytical results forms.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J”.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified a minor aspect of the analytical data that required qualification due results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:



Ellen E. Seeley
Quality Assurance Chemist

Report Reviewed and Approved By:



William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS



Sample ID: DPI0.7-5		EPA Method 8290					
Client Data		Sample Data		Laboratory Data			
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27272-001		
Project:	Fort Bragg-Site Assessment	Sample Size:	11.7 g	QC Batch No.:	7750		
Date Collected:	25-Jan-06	%Solids:	84.1	Date Analyzed DB-5:	15-Feb-06		
Time Collected:	1313			Date Analyzed DB-225:	NA		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.148		IS 13C-2,3,7,8-TCDD	97.1	40 - 135	
1,2,3,7,8-PeCDD	ND	0.155		13C-1,2,3,7,8-PeCDD	121	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.137		13C-1,2,3,4,7,8-HxCDD	101	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.142		13C-1,2,3,6,7,8-HxCDD	106	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.135		13C-1,2,3,4,6,7,8-HpCDD	94.6	40 - 135	
1,2,3,4,6,7,8-HpCDD	0.301		J	13C-OCDD	67.5	40 - 135	
OCDD	3.09		J	13C-2,3,7,8-TCDF	91.2	40 - 135	
2,3,7,8-TCDF	ND	0.126		13C-1,2,3,7,8-PeCDF	115	40 - 135	
1,2,3,7,8-PeCDF	ND	0.125		13C-2,3,4,7,8-PeCDF	119	40 - 135	
2,3,4,7,8-PeCDF	ND	0.117		13C-1,2,3,4,7,8-HxCDF	114	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0347		13C-1,2,3,6,7,8-HxCDF	108	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0354		13C-2,3,4,6,7,8-HxCDF	107	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0386		13C-1,2,3,7,8,9-HxCDF	97.1	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0588		13C-1,2,3,4,6,7,8-HpCDF	91.2	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND	0.0507		13C-1,2,3,4,7,8,9-HpCDF	96.9	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.0529		13C-OCDF	78.8	40 - 135	
OCDF	ND	0.173		CRS 37Cl-2,3,7,8-TCDD	102	40 - 135	
Totals							
Total TCDD	ND	0.148		Toxic Equivalent Quotient (TEQ) Data^e			
Total PeCDD	ND	0.155		TEQ (Min):	0.00610		
Total HxCDD	ND	0.138		a. Sample specific estimated detection limit.			
Total HpCDD	0.512			b. Estimated maximum possible concentration.			
Total TCDF	ND	0.126		c. Method detection limit.			
Total PeCDF	ND	0.121		d. Lower control limit - upper control limit.			
Total HxCDF	ND	0.0408		e. Toxic Equivalent Quotient (TEQ) based on International Toxic Equivalent Factors (ITEF).			
Total HpCDF	ND	0.0517					

Analyst: DMS
Approved By: Martha M. Maier 16-Feb-2006 15:10



Sample ID: DP10.9-9.5		EPA Method 8290			
Client Data		Sample Data		Laboratory Data	
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27272-002
Project:	Fort Bragg-Site Assessment	Sample Size:	11.5 g	QC Batch No.:	7750
Date Collected:	26-Jan-06	%Solids:	84.9	Date Analyzed DB-5:	15-Feb-06
Time Collected:	0930			Date Analyzed DB-225:	NA
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Labeled Standard	%R LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.127		IS 13C-2,3,7,8-TCDD	87.5 40 - 135
1,2,3,7,8-PeCDD	ND	0.167		13C-1,2,3,7,8-PeCDD	101 40 - 135
1,2,3,4,7,8-HxCDD	ND	0.136		13C-1,2,3,4,7,8-HxCDD	81.4 40 - 135
1,2,3,6,7,8-HxCDD	ND	0.152		13C-1,2,3,6,7,8-HxCDD	83.4 40 - 135
1,2,3,7,8,9-HxCDD	ND	0.139		13C-1,2,3,4,6,7,8-HpCDD	73.9 40 - 135
1,2,3,4,6,7,8-HpCDD	ND	0.0915		13C-OCDD	42.9 40 - 135
OCDD	1.33			13C-2,3,7,8-TCDF	98.7 40 - 135
2,3,7,8-TCDF	ND	0.106		13C-1,2,3,7,8-PeCDF	116 40 - 135
1,2,3,7,8-PeCDF	ND	0.175		13C-2,3,4,7,8-PeCDF	118 40 - 135
2,3,4,7,8-PeCDF	ND	0.161		13C-1,2,3,4,7,8-HxCDF	81.8 40 - 135
1,2,3,4,7,8-HxCDF	ND	0.0392		13C-1,2,3,6,7,8-HxCDF	85.5 40 - 135
1,2,3,6,7,8-HxCDF	ND	0.0396		13C-2,3,4,6,7,8-HxCDF	84.6 40 - 135
2,3,4,6,7,8-HxCDF	ND	0.0415		13C-1,2,3,7,8,9-HxCDF	89.4 40 - 135
1,2,3,7,8,9-HxCDF	ND	0.0574		13C-1,2,3,4,6,7,8-HpCDF	73.0 40 - 135
1,2,3,4,6,7,8-HpCDF	ND	0.0519		13C-1,2,3,4,7,8,9-HpCDF	72.5 40 - 135
1,2,3,4,7,8,9-HpCDF	ND	0.0575		13C-OCDF	50.3 40 - 135
OCDF	ND	0.236		CRS 37Cl-2,3,7,8-TCDD	91.6 40 - 135
Totals				Toxic Equivalent Quotient (TEQ) Data ^c	
Total TCDD	ND	0.127		TEQ (Min):	0.00133
Total PeCDD	ND	0.167		a. Sample specific estimated detection limit.	
Total HxCDD	ND	0.142		b. Estimated maximum possible concentration.	
Total HpCDD	ND	0.0915		c. Method detection limit.	
Total TCDF	ND	0.106		d. Lower control limit - upper control limit.	
Total PeCDF	ND	0.168		e. Toxic Equivalent Quotient (TEQ) based on International Toxic Equivalent Factors (TEF).	
Total HxCDF	ND	0.0441			
Total HpCDF	ND	0.0544			

Analyst: DMS

Approved By: Martha M. Maier 16-Feb-2006 15:10

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Reviewed By: E. Beelen

Sample Collection Dates: 1/25/06 - 1/26/06

Approved By: Log K

Client: Acton Mickelson Environmental, Inc.

Completion Date: 7/11/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 27272
 *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail	Problems Identified	Support Documentation Attachments
	Check if Yes or Footnote Letter for Comments Below	Check if Yes or Footnote Number for Comments Below	Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	(1)	✓
Laboratory Method Blank Results	✓		✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓	(2)	✓
Verification of the EDD in XLS Format	✓		✓

Comments:

(1) Samples were received at subcontract laboratory at temperature below the accepted range of $4 \pm 2^\circ\text{C}$.

(2) Sample concentrations as reported were below the calibration range of the instrument.

Curtis & Tompkins SDG: 184796



Method Blank		EPA Method 8290					
Matrix:	Soil	QC Batch No.:	7750	Lab Sample:	0-MB001		
Sample Size:	10.0 g	Date Extracted:	13-Feb-06	Date Analyzed DB-5:	15-Feb-06		
Date Analyzed DB-225:	NA						
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0919		13C-2,3,7,8-TCDD	89.3	40 - 135	
1,2,3,7,8-PeCDD	ND	0.126		13C-1,2,3,7,8-PeCDD	99.1	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.103		13C-1,2,3,4,7,8-HxCDD	86.4	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.105		13C-1,2,3,6,7,8-HxCDD	94.3	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.100		13C-1,2,3,4,6,7,8-HpCDD	77.9	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.0686		13C-OCDD	52.5	40 - 135	
OCDD	ND	0.159		13C-2,3,7,8-TCDF	85.6	40 - 135	
2,3,7,8-TCDF	ND	0.102		13C-1,2,3,7,8-PeCDF	104	40 - 135	
1,2,3,7,8-PeCDF	ND	0.166		13C-2,3,4,7,8-PeCDF	102	40 - 135	
2,3,4,7,8-PeCDF	ND	0.161		13C-1,2,3,4,7,8-HxCDF	96.6	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0334		13C-1,2,3,6,7,8-HxCDF	95.8	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0324		13C-2,3,4,6,7,8-HxCDF	92.3	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0372		13C-1,2,3,7,8,9-HxCDF	92.9	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0540	0.147	13C-1,2,3,4,6,7,8-HpCDF	80.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND	0.0810		13C-1,2,3,4,7,8,9-HpCDF	79.8	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.268		13C-OCDF	59.5	40 - 135	
OCDF	ND			CRS 37Cl-2,3,7,8-TCDD	98.2	40 - 135	
Totals							
Toxic Equivalent Quotient (TEQ) Data							
Total TCDD	ND	0.0919		TEQ (Min):	0		
Total PeCDD	ND	0.126					
Total HxCDD	ND	0.102					
Total HpCDD	ND	0.0686					
Total TCDF	ND	0.102					
Total PeCDF	ND	0.163					
Total HxCDF	ND	0.0386					
Total HpCDF	ND		0.147				

- a. Sample specific estimated detection limit.
- b. Estimated maximum possible concentration.
- c. Method detection limit.
- d. Lower control limit - upper control limit.
- e. Toxic Equivalent Quotient (TEQ) based on International Toxic Equivalent Factors (ITEF).

Analyst: DMS
 Approved By: Martha M. Maier 16-Feb-2006 15:10



OPR Results		EPA Method 8290				
Matrix:	Soil	QC Batch No.:	7750	Lab Sample:	0-OPR001	
Sample Size:	10.0 g	Date Extracted:	13-Feb-06	Date Analyzed DB-5:	14-Feb-06	
				Date Analyzed DB-225:	NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	9.83	7 - 13	<u>IS</u> 13C-2,3,7,8-TCDD	90.2	40 - 135
1,2,3,7,8-PeCDD	50.0	52.1	35 - 65	13C-1,2,3,7,8-PeCDD	103	40 - 135
1,2,3,4,7,8-HxCDD	50.0	49.2	35 - 65	13C-1,2,3,4,7,8-HxCDD	89.1	40 - 135
1,2,3,6,7,8-HxCDD	50.0	50.4	35 - 65	13C-1,2,3,6,7,8-HxCDD	96.4	40 - 135
1,2,3,7,8,9-HxCDD	50.0	49.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	81.7	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	50.2	35 - 65	13C-OCDD	55.1	40 - 135
OCDD	100	100	70 - 130	13C-2,3,7,8-TCDF	89.8	40 - 135
2,3,7,8-TCDF	10.0	9.82	7 - 13	13C-1,2,3,7,8-PeCDF	109	40 - 135
1,2,3,7,8-PeCDF	50.0	49.5	35 - 65	13C-2,3,4,7,8-PeCDF	108	40 - 135
2,3,4,7,8-PeCDF	50.0	49.7	35 - 65	13C-1,2,3,4,7,8-HxCDF	101	40 - 135
1,2,3,4,7,8-HxCDF	50.0	49.3	35 - 65	13C-1,2,3,6,7,8-HxCDF	97.2	40 - 135
1,2,3,6,7,8-HxCDF	50.0	50.4	35 - 65	13C-2,3,4,6,7,8-HxCDF	94.0	40 - 135
2,3,4,6,7,8-HxCDF	50.0	50.3	35 - 65	13C-1,2,3,7,8,9-HxCDF	94.8	40 - 135
1,2,3,7,8,9-HxCDF	50.0	49.4	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	87.2	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	49.1	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	84.8	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	49.1	35 - 65	13C-OCDF	63.1	40 - 135
OCDF	100	94.3	70 - 130	<u>CRS</u> 37Cl-2,3,7,8-TCDD	90.9	40 - 135

Analyst: DMS

Approved By: Martha M. Maier 16-Feb-2006 15:10

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD



February 16, 2006

Alta Project I.D.: 27272

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the two soil samples received at Alta Analytical Laboratory on February 09, 2006 under your Project Name "Fort Bragg-Site Assessment". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the procedures used in all the measurements set forth by NELAP are those applicable to each test. This certifies that the results are reliable, except to the extent that the accuracy of the test results is affected by the accuracy of the methods used.



Section I: Sample Inventory Report

Date Received: 2/9/2006

<u>Alta Lab. ID</u>	<u>Client Sample ID</u>
27272-001	DP10.7-5
27272-002	DP10.9-9.5

Curtis & Tompkins, Ltd.
 Analytical Laboratories, Since 1878
 2323 Fifth Street
 Berkeley, CA 94710
 (510) 486-0900
 (510) 486-0532

27272
 0.6°C

Project Number: 184796
 Site: Ft Bragg-Site Assessment

Subcontract Laboratory:
 Alta Analytical Lab, Inc.
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 933-1640
 ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker

*** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
DP10.7-5	01/25 13:13	Soil	8290	184564-014	
DP10.9-9.5	01/26 09:30	Soil	8290	184623-008	

Notes:	Relinquished By:	Received By:
	<i>Ann Peters</i>	<i>Bettina P. Benedict</i>
	Date/Time: 2/8/06 1446	Date/Time: 2/9/06 0740

Signature on this form constitutes a firm Purchase Order for the services requested above.
 Page 1 of 1

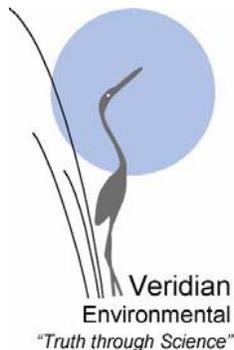
SAMPLE LOG-IN CHECKLIST

Alta Project #: 27272

Samples Arrival:	Date/Time 2/9/06 0740	Initials: BBB	Location: WR-2
Logged In:	Date/Time 2/9/06 1239	Initials: BBB	Location: WR-2
Delivered By:	FedEx	UPS	<u>Cal</u> DHL Hand Delivered Other
Preservation:	<u>Ice</u>	Blue Ice	Dry Ice None
Temp °C	0.6°C	Time: 0750	Thermometer ID: DT-20

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill			
Trk #	C10129000024466		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓
Na ₂ S ₂ O ₃ Preservation Documented?		COC	Sample Container <u>None</u>
Shipping Container	Alta	<u>Client</u>	Retain <u>Return</u> Dispose

Comments:



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT
*Georgia-Pacific
California Wood Products
Manufacturing Facility*
Laboratory Project IDs

- *Alta Analytical Laboratory, Inc.*
#27640
- *Curtis & Tompkins, Ltd.*
#186230

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on two soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-4.7-15	27640-001	27640	04/17/06	D
Soil	DP-4.11-13	27640-002	27640	04/17/06	D

Note:

- D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data

end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results			✓	
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			✓	
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. In addition, the samples were received in clear jars as opposed to amber jars as required by the method. These exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Reported positive results have been qualified as qualitatively questionable (U) on the associated qualified analytical results forms, where warranted. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	<u>Concentration</u>
OCDD	1.93 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J” on the qualified analytical result forms.

According to the laboratory, the concentrations of the following analytes in the sample listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers.

<u>Sample</u>	<u>Analyte</u>
DP-4.11-13	Total TCDF, Total PeCDF, 1,2,3,6,7,8-HxCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDF, Total HxCDF, 1,2,3,4,6,7,8-HpCDF, and Total HpCDF

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

Sample ID(s)	SDG	Compound(s)	DV Qualifier	Reason(s)
DP-4.7-15	27640	OCDD	U	Positive result for analyte in laboratory method blank

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J”.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified a few minor aspects of the analytical data that required qualification due to laboratory method blank contamination and results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

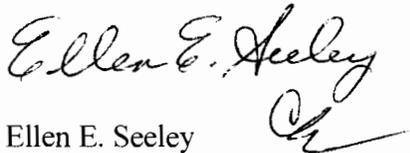
U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:



Ellen E. Seeley
Quality Assurance Chemist

Report Reviewed and Approved By:



William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP-4.7-15		EPA Method 8290					
Client Data		Sample Data		Laboratory Data			
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27640-001		
Project:	Ft Bragg-Site Assessment 186230	Sample Size:	12.0 g	QC Batch No.:	7989		
Date Collected:	17-Apr-06	%Solids:	81.7	Date Analyzed DB-5:	5-May-06		
Time Collected:	1015			Date Analyzed DB-225:	N/A		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0235			91.0	40 - 135	
1,2,3,7,8-PeCDD	ND	0.0373			91.6	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.0417			84.8	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.0431			87.0	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.0428		J	88.7	40 - 135	
1,2,3,4,6,7,8-HpCDD	1.46				65.5	40 - 135	
OCDD	11.2			B	98.4	40 - 135	
2,3,7,8-TCDF	ND	0.0255			94.2	40 - 135	
1,2,3,7,8-PeCDF	ND	0.0290			91.4	40 - 135	
2,3,4,7,8-PeCDF	ND	0.0277			84.6	40 - 135	
1,2,3,4,7,8-HxCDF	0.125			J	83.0	40 - 135	
1,2,3,6,7,8-HxCDF	0.0862			J	87.0	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0312			83.6	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0491			84.6	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.570			J	87.4	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.0690			67.3	40 - 135	
OCDF	1.25			J	93.3	40 - 135	
Totals							
Total TCDD	0.177						
Total PeCDD	0.122						
Total HxCDD	1.00						
Total HpCDD	2.86						
Total TCDF	0.147						
Total PeCDF	0.370						
Total HxCDF	0.911						
Total HpCDF	1.47						
Toxic Equivalent Quotient (TEQ) Data^e							
TEQ (Min):		0.0427					
a. Sample specific estimated detection limit.							
b. Estimated maximum possible concentration.							
c. Method detection limit.							
d. Lower control limit - upper control limit.							
e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)							

Analyst: JMH

Approved By: Martha M. Maier 09-May-2006 15:58

Sample ID: DP-4.11-13

EPA Method 8290

Client Data		Sample Data		Laboratory Data			
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27640-002		
Project:	Ft Bragg-Site Assessment 186230	Sample Size:	18.7 g	QC Batch No.:	7989		
Date Collected:	17-Apr-06	%Solids:	33.2	Date Analyzed DB-5:	5-May-06		
Time Collected:	1500			Date Analyzed DB-225:	8-May-06		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	198				72.9	40 - 135	
1,2,3,7,8-PeCDD	466				81.5	40 - 135	
1,2,3,4,7,8-HxCDD	313				73.6	40 - 135	
1,2,3,6,7,8-HxCDD	465				75.0	40 - 135	
1,2,3,7,8,9-HxCDD	400				87.8	40 - 135	
1,2,3,4,6,7,8-HpCDD	1960				66.1	40 - 135	
OCDD	3260			B	78.9	40 - 135	
2,3,7,8-TCDF	1190				80.4	40 - 135	
1,2,3,7,8-PeCDF	623				81.3	40 - 135	
2,3,4,7,8-PeCDF	1090				67.9	40 - 135	
1,2,3,4,7,8-HxCDF	381				62.2	40 - 135	
1,2,3,6,7,8-HxCDF	419			D	74.5	40 - 135	
2,3,4,6,7,8-HxCDF	494			D	75.6	40 - 135	
1,2,3,7,8,9-HxCDF	150			D	75.3	40 - 135	
1,2,3,4,6,7,8-HpCDF	528			D	77.6	40 - 135	
1,2,3,4,7,8,9-HpCDF	126				60.1	40 - 135	
OCDF	213				78.1	40 - 135	
Totals							
Total TCDD	5570						
Total PeCDD	6270						
Total HxCDD	6360						
Total HpCDD	3420						
Total TCDF	22900			D			
Total PeCDF	10300			D			
Total HxCDF	3890			D			
Total HpCDF	1050			D			
Toxic Equivalent Quotient (TEQ) Data							
TEQ (Min): 1650							
a. Sample specific estimated detection limit.							
b. Estimated maximum possible concentration.							
c. Method detection limit.							
d. Lower control limit - upper control limit.							
e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)							

Analyst: JMH

Approved By: Martha M. Maier 09-May-2006 15:58

ATTACHMENT B
SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Reviewed By: E. Seebay

Sample Collection Dates: 4/17/06

Approved By: ugk

Client: Acton Mickelson Environmental, Inc.

Completion Date: 7/10/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 27640
*Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	(1)	✓
Laboratory Method Blank Results	✓	(2)	✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓	(3)	✓
Verification of the EDD in XLS Format	✓		✓

Comments:

(1) Samples were received in clear glass jars instead of the method-specified amber jars.

(2) OCDS was present in the Method Blank.

(3) Sample concentrations as reported were below the calibration range of the instrument. Also, diaphenyl ether interference was present in one or more samples.

Curtis & Tompkins SDG: 186230

Method Blank				EPA Method 8290			
Matrix:	Soil	QC Batch No.:	7989	Lab Sample:	0-MB001	Date Analyzed DB-225:	NA
Sample Size:	10.0 g	Date Extracted:	4-May-06	Date Analyzed DB-5:	5-May-06		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.0446			13C-2,3,7,8-TCDD	93.3	40 - 135
1,2,3,7,8-PeCDD	ND	0.0451			13C-1,2,3,7,8-PeCDD	86.7	40 - 135
1,2,3,4,7,8-HxCDD	ND	0.0830			13C-1,2,3,4,7,8-HxCDD	86.1	40 - 135
1,2,3,6,7,8-HxCDD	ND	0.0830			13C-1,2,3,6,7,8-HxCDD	90.5	40 - 135
1,2,3,7,8,9-HxCDD	ND	0.0838			13C-1,2,3,4,6,7,8-HpCDD	90.8	40 - 135
1,2,3,4,6,7,8-HpCDD	ND	0.129			13C-OCDD	67.8	40 - 135
OCDD	1.93			J	13C-2,3,7,8-TCDF	100	40 - 135
2,3,7,8-TCDF	ND	0.0408			13C-1,2,3,7,8-PeCDF	88.0	40 - 135
1,2,3,7,8-PeCDF	ND	0.0496			13C-2,3,4,7,8-PeCDF	87.6	40 - 135
2,3,4,7,8-PeCDF	ND	0.0475			13C-1,2,3,4,7,8-HxCDF	84.7	40 - 135
1,2,3,4,7,8-HxCDF	ND	0.0590			13C-1,2,3,6,7,8-HxCDF	83.5	40 - 135
1,2,3,6,7,8-HxCDF	ND	0.0535			13C-2,3,4,6,7,8-HxCDF	88.2	40 - 135
2,3,4,6,7,8-HxCDF	ND	0.0608			13C-1,2,3,7,8,9-HxCDF	84.7	40 - 135
1,2,3,7,8,9-HxCDF	ND	0.0970			13C-1,2,3,4,6,7,8-HpCDF	85.3	40 - 135
1,2,3,4,6,7,8-HpCDF	ND	0.222			13C-1,2,3,4,7,8,9-HpCDF	88.9	40 - 135
1,2,3,4,7,8,9-HpCDF	ND	0.233			13C-OCDF	68.9	40 - 135
OCDF	ND	0.196			37Cl-2,3,7,8-TCDD	90.1	40 - 135
Totals					Toxic Equivalent Quotient (TEQ) Data		
Total TCDD	ND	0.0446			TEQ (Min):	0.000193	
Total PeCDD	ND	0.0451			a. Sample specific estimated detection limit.		
Total HxCDD	ND	0.0833			b. Estimated maximum possible concentration.		
Total HpCDD	ND	0.129			c. Method detection limit		
Total TCDF	ND	0.0408			d. Lower control limit - upper control limit.		
Total PeCDF	ND	0.0486			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)		
Total HxCDF	ND	0.0676					
Total HpCDF	ND	0.228					

Analyst: JMH

Approved By: Martha M. Maier 09-May-2006 15:58

OPR Results

EPA Method 8290

Matrix:		Soil	QC Batch No.:	7989	Lab Sample:	0-OPR001
Sample Size:		10.0 g	Date Extracted:	4-May-06	Date Analyzed DB-5:	5-May-06
					Date Analyzed DB-225:	NA
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	10.9	7 - 13	IS 13C-2,3,7,8-TCDD	75.2	40 - 135
1,2,3,7,8-PeCDD	50.0	51.9	35 - 65	13C-1,2,3,7,8-PeCDD	78.2	40 - 135
1,2,3,4,7,8-HxCDD	50.0	52.2	35 - 65	13C-1,2,3,4,7,8-HxCDD	73.4	40 - 135
1,2,3,6,7,8-HxCDD	50.0	52.4	35 - 65	13C-1,2,3,6,7,8-HxCDD	78.9	40 - 135
1,2,3,7,8,9-HxCDD	50.0	52.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	66.8	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	52.3	35 - 65	13C-OCDD	41.5	40 - 135
OCDD	100	106	70 - 130	13C-2,3,7,8-TCDF	85.4	40 - 135
2,3,7,8-TCDF	10.0	10.2	7 - 13	13C-1,2,3,7,8-PeCDF	77.9	40 - 135
1,2,3,7,8-PeCDF	50.0	52.6	35 - 65	13C-2,3,4,7,8-PeCDF	77.1	40 - 135
2,3,4,7,8-PeCDF	50.0	51.9	35 - 65	13C-1,2,3,4,7,8-HxCDF	75.8	40 - 135
1,2,3,4,7,8-HxCDF	50.0	52.0	35 - 65	13C-1,2,3,6,7,8-HxCDF	73.0	40 - 135
1,2,3,6,7,8-HxCDF	50.0	52.0	35 - 65	13C-2,3,4,6,7,8-HxCDF	77.7	40 - 135
2,3,4,6,7,8-HxCDF	50.0	51.5	35 - 65	13C-1,2,3,7,8,9-HxCDF	65.9	40 - 135
1,2,3,7,8,9-HxCDF	50.0	52.6	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	65.3	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	52.2	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	64.3	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	52.8	35 - 65	13C-OCDF	44.1	40 - 135
OCDF	100	104	70 - 130	CRS 37Cl-2,3,7,8-TCDD	80.7	40 - 135

Analyst: JMH

Approved By: Martha M. Maier 09-May-2006 15:58

ATTACHMENT C
COVER LETTER AND
CHAIN-OF-CUSTODY RECORD

May 10, 2006

Alta Project I.D.: 27640

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the two soil samples received at Alta Analytical Laboratory on May 02, 2006 under your Project Name "Ft. Bragg-Site Assessment 186230". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the information meets all the requirements set forth by NELAP for this applicable test method. This report should not be reproduced in full without the written approval of ALTA.



Section I: Sample Inventory Report

Date Received: 5/2/2006

Alta Lab. ID

Client Sample ID

27640-001

DP-4.7-15

27640-002

DP-4.11-13

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900
(510) 486-0532

27640

2.9°C

Project Number: 186230
Site: Ft Bragg-Site Assessment

Subcontract Laboratory:
Alta Analytical Lab, Inc.
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 933-1640
ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker
*** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
DP-4.7-15	04/17 10:15	Soil	8290	186230-002	
DP-4.11-13	04/17 15:00	Soil	8290	186230-005	

Notes:	Relinquished By:	Received By:
	<i>[Signature]</i>	<i>[Signature]</i>
	Date/Time: 5-1-06 / 1700	Date/Time: 5/1/06 0957

Signature on this form constitutes a firm Purchase Order for the services requested above.

SAMPLE LOG-IN CHECKLIST

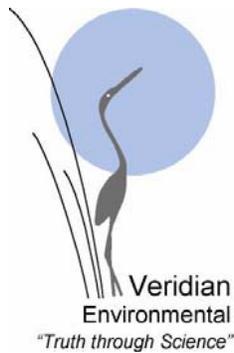
Alta Project #: 27640

Samples Arrival:	Date/Time 5/2/06 0957	Initials: VBB	Location: WR-2			
Logged In:	Date/Time 5/2/06 1255	Initials: VBB	Location: WR-2			
Delivered By:	FedEx	UPS	Cal	DHL	Hand Delivered	Other
Preservation:	Ice	Blue Ice	Dry Ice	None		
Temp °C	2.9°C	Time:	1015	Thermometer ID: DT-20		

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill	Trk # C10129000026462		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓
Na ₂ S ₂ O ₃ Preservation Documented?		COC	Sample Container
Shipping Container	Alta	Client	Retain
			Return
			Dispose

Comments:

samples received in clear glass jars



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT
Georgia-Pacific
California Wood Products
Manufacturing Facility

Laboratory Project ID

- *Alta Analytical Laboratory, Inc.*
#27645
- *Curtis & Tompkins, Ltd.*
#186320

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on three soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-5.60-8	27645-001	27645	04/20/06	D
Soil	DP-5.60-13	27645-002	27645	04/20/06	D
Soil	DP-4.15-5	27645-003	27645	04/20/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data

end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results		✓		
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			✓	
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The samples were received in clear jars as opposed to amber jars as required by the method. This exception does not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Qualification of the data was not warranted on this basis. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	<u>Concentration</u>
OCDD	1.93 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J” on the qualified analytical results forms.

According to the laboratory, the concentrations of the following analytes in the sample listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers.

<u>Sample</u>	<u>Analyte</u>
DP-4.15-5	Total TCDF, Total HxCDF, and Total HpCDF

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J”.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.

DV Qualifier	Definition
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified a minor aspect of the analytical data that required qualification due to results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:



Ellen E. Seeley
Quality Assurance Chemist

Report Reviewed and Approved By:



William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP-5.60-8

EPA Method 8290

Client Data		Sample Data		Laboratory Data	
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27645-001
Project:	Ft Bragg-Site Assessment 186320	Sample Size:	11.6 g	QC Batch No.:	7989
Date Collected:	20-Apr-06	%Solids:	86.0	Date Analyzed DB-5:	6-May-06
Time Collected:	0850			Date Analyzed DB-225:	NA

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND		0.145		13C-2,3,7,8-TCDD	72.7	40 - 135	
1,2,3,7,8-PeCDD	0.374			J	13C-1,2,3,7,8-PeCDD	77.7	40 - 135	
1,2,3,4,7,8-HxCDD	0.223			J	13C-1,2,3,4,7,8-HxCDD	74.4	40 - 135	
1,2,3,6,7,8-HxCDD	0.889			J	13C-1,2,3,6,7,8-HxCDD	74.3	40 - 135	
1,2,3,7,8,9-HxCDD	0.577			J	13C-1,2,3,4,6,7,8-HpCDD	85.1	40 - 135	
1,2,3,4,6,7,8-HpCDD	10.5				13C-OCDD	61.1	40 - 135	
OCDD	49.3			B	13C-2,3,7,8-TCDF	79.9	40 - 135	
2,3,7,8-TCDF	0.274			J	13C-1,2,3,7,8-PeCDF	78.2	40 - 135	
1,2,3,7,8-PeCDF	ND		0.122		13C-2,3,4,7,8-PeCDF	78.8	40 - 135	
2,3,4,7,8-PeCDF	0.379			J	13C-1,2,3,4,7,8-HxCDF	72.0	40 - 135	
1,2,3,4,7,8-HxCDF	0.136			J	13C-1,2,3,6,7,8-HxCDF	68.2	40 - 135	
1,2,3,6,7,8-HxCDF	0.209			J	13C-2,3,4,6,7,8-HxCDF	76.1	40 - 135	
2,3,4,6,7,8-HxCDF	0.219			J	13C-1,2,3,7,8,9-HxCDF	77.4	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0435			13C-1,2,3,4,6,7,8-HpCDF	76.7	40 - 135	
1,2,3,4,6,7,8-HpCDF	1.31			J	13C-1,2,3,4,7,8,9-HpCDF	83.9	40 - 135	
1,2,3,4,7,8,9-HpCDF	0.114			J	13C-OCDF	65.9	40 - 135	
OCDF	3.06			J	CRS 37Cl-2,3,7,8-TCDD	76.8	40 - 135	

Toxic Equivalent Quotient (TEQ) Data ^e	
Totals	
Total TCDD	0.589
Total PeCDD	1.79
Total HxCDD	8.55
Total HpCDD	20.9
Total TCDF	4.68
Total PeCDF	4.49
Total HxCDF	3.93
Total HpCDF	4.19
TEQ (Min):	0.941

- a. Sample specific estimated detection limit
- b. Estimated maximum possible concentration
- c. Method detection limit
- d. Lower control limit - upper control limit
- e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)

Analyst: JMH

Approved By: Martha M. Maier 10-May-2006 14:23

Sample ID: DP-5.60-13

EPA Method 8290

Client Data		Sample Data		Laboratory Data	
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27645-002
Project:	Ft Bragg-Site Assessment 186320	Sample Size:	9.99 g	QC Batch No.:	7989
Date Collected:	20-Apr-06	%Solids:	78.5	Date Analyzed DB-5:	6-May-06
Time Collected:	0900			Date Analyzed DB-225:	NA

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0302			13C-2,3,7,8-TCDD	75.2	40 - 135	
1,2,3,7,8-PeCDD	0.276			J	13C-1,2,3,7,8-PeCDD	75.2	40 - 135	
1,2,3,4,7,8-HxCDD	0.191			J	13C-1,2,3,4,7,8-HxCDD	73.3	40 - 135	
1,2,3,6,7,8-HxCDD	0.739			J	13C-1,2,3,6,7,8-HxCDD	76.7	40 - 135	
1,2,3,7,8,9-HxCDD	0.627			J	13C-1,2,3,4,6,7,8-HpCDD	77.3	40 - 135	
1,2,3,4,6,7,8-HpCDD	9.31				13C-OCDD	54.1	40 - 135	
OCDD	44.5			B	13C-2,3,7,8-TCDF	80.5	40 - 135	
2,3,7,8-TCDF	0.192			J	13C-1,2,3,7,8-PeCDF	76.7	40 - 135	
1,2,3,7,8-PeCDF	0.103			J	13C-2,3,4,7,8-PeCDF	76.7	40 - 135	
2,3,4,7,8-PeCDF	0.252			J	13C-1,2,3,4,7,8-HxCDF	71.4	40 - 135	
1,2,3,4,7,8-HxCDF	ND		0.105		13C-1,2,3,6,7,8-HxCDF	68.3	40 - 135	
1,2,3,6,7,8-HxCDF	0.134			J	13C-2,3,4,6,7,8-HxCDF	74.7	40 - 135	
2,3,4,6,7,8-HxCDF	ND		0.143		13C-1,2,3,7,8,9-HxCDF	71.2	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0522			13C-1,2,3,4,6,7,8-HpCDF	70.7	40 - 135	
1,2,3,4,6,7,8-HpCDF	1.04			J	13C-1,2,3,4,7,8,9-HpCDF	74.6	40 - 135	
1,2,3,4,7,8,9-HpCDF	0.136			J	13C-OCDF	57.1	40 - 135	
OCDF	2.88			J	CRS 37Cl-2,3,7,8-TCDD	78.2	40 - 135	

Totals		Toxic Equivalent Quotient (TEQ) Data ^e	
Total TCDD	ND	TEQ (Min):	0.705
Total PeCDD	0.913		
Total HxCDD	7.09		
Total HpCDD	17.5		
Total TCDF	2.67		
Total PeCDF	2.67		
Total HxCDF	2.59		
Total HpCDF	3.17		

- a. Sample specific estimated detection limit.
- b. Estimated maximum possible concentration.
- c. Method detection limit.
- d. Lower control limit - upper control limit.
- e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)

Analyst: JMH

Approved By: Martha M. Maier 10-May-2006 13:26

EPA Method 8290

Sample ID: DP-4.15-5

Client Data		Sample Data		Laboratory Data	
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27645-003
Project:	Ft Bragg-Site Assessment 186320	Sample Size:	20.1 g	QC Batch No.:	7989
Date Collected:	20-Apr-06	%Solids:	28.9	Date Analyzed DB-5:	6-May-06
Time Collected:	1345			Date Analyzed DB-225:	8-May-06

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	2.41				13C-2,3,7,8-TCDD	67.8	40 - 135	
1,2,3,7,8-PeCDD	9.15				13C-1,2,3,7,8-PeCDD	70.3	40 - 135	
1,2,3,4,7,8-HxCDD	9.73				13C-1,2,3,4,7,8-HxCDD	69.7	40 - 135	
1,2,3,6,7,8-HxCDD	41.3				13C-1,2,3,6,7,8-HxCDD	76.5	40 - 135	
1,2,3,7,8,9-HxCDD	28.5				13C-1,2,3,4,6,7,8-HpCDD	88.0	40 - 135	
1,2,3,4,6,7,8-HpCDD	861				13C-OCDD	71.3	40 - 135	
OCDD	4090			B	13C-2,3,7,8-TCDF	75.0	40 - 135	
2,3,7,8-TCDF	3.78				13C-1,2,3,7,8-PeCDF	72.1	40 - 135	
1,2,3,7,8-PeCDF	3.38	J		J	13C-2,3,4,7,8-PeCDF	71.6	40 - 135	
2,3,4,7,8-PeCDF	7.81				13C-1,2,3,4,7,8-HxCDF	64.0	40 - 135	
1,2,3,4,7,8-HxCDF	4.01	J		J	13C-1,2,3,6,7,8-HxCDF	59.9	40 - 135	
1,2,3,6,7,8-HxCDF	12.2				13C-2,3,4,6,7,8-HxCDF	68.2	40 - 135	
2,3,4,6,7,8-HxCDF	6.92				13C-1,2,3,7,8,9-HxCDF	73.1	40 - 135	
1,2,3,7,8,9-HxCDF	1.94	J		J	13C-1,2,3,4,6,7,8-HpCDF	73.7	40 - 135	
1,2,3,4,6,7,8-HpCDF	83.5				13C-1,2,3,4,7,8,9-HpCDF	82.9	40 - 135	
1,2,3,4,7,8,9-HpCDF	6.14				13C-OCDF	73.1	40 - 135	
OCDF	218				CRS 37Cl-2,3,7,8-TCDD	68.5	40 - 135	

Toxic Equivalent Quotient (TEQ) Data ^e	
Totals	
Total TCDD	18.6
Total PeCDD	45.2
Total HxCDD	353
Total HpCDD	1490
Total TCDF	81.1
Total PeCDF	116
Total HxCDF	146
Total HpCDF	244
TEQ (Min):	36.4

- a. Sample specific estimated detection limit.
- b. Estimated maximum possible concentration.
- c. Method detection limit.
- d. Lower control limit - upper control limit.
- e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)

Analyst: JMH

Approved By: Martha M. Maier 10-May-2006 13:26

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Reviewed By: E. Decker

Sample Collection Dates: 4/20/06

Approved By: [Signature]

Client: Acton Mickelson Environmental, Inc.

Completion Date: 7/10/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 27645

*Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	(1)	✓
Laboratory Method Blank Results	✓	(2)	✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓	(3)	✓
Verification of the EDD in XLS Format	✓		✓

Comments:

(1) Samples were received in clear glass jars instead of the method-specified amber jars.

(2) OCDD was present in the Method Blank.

(3) Sample concentrations were below the calibration range of the instrument. Also, dichroic ether interference was observed in one or more samples.

Curtis & Tompkins SDG: 186320

Method Blank		EPA Method 8290						
Matrix:	Soil	QC Batch No.:	7989	Lab Sample:	0-MB001			
Sample Size:	10.0 g	Date Extracted:	4-May-06	Date Analyzed DB-5:	5-May-06			
				Date Analyzed DB-225:	NA			
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0446			13C-2,3,7,8-TCDD	93.3	40 - 135	
1,2,3,7,8-PeCDD	ND	0.0451			13C-1,2,3,7,8-PeCDD	86.7	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.0830			13C-1,2,3,4,7,8-HxCDD	86.1	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.0830			13C-1,2,3,6,7,8-HxCDD	90.5	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.0838			13C-1,2,3,4,6,7,8-HpCDD	90.8	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.129			13C-OCDD	67.8	40 - 135	
OCDD	1.93			J	13C-2,3,7,8-TCDF	100	40 - 135	
2,3,7,8-TCDF	ND	0.0408			13C-1,2,3,7,8-PeCDF	88.0	40 - 135	
1,2,3,7,8-PeCDF	ND	0.0496			13C-2,3,4,7,8-PeCDF	87.6	40 - 135	
2,3,4,7,8-PeCDF	ND	0.0475			13C-1,2,3,4,7,8-HxCDF	84.7	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0590			13C-1,2,3,6,7,8-HxCDF	83.5	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0535			13C-2,3,4,6,7,8-HxCDF	88.2	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0608			13C-1,2,3,7,8,9-HxCDF	84.7	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0970			13C-1,2,3,4,6,7,8-HpCDF	85.3	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND	0.222			13C-1,2,3,4,7,8,9-HpCDF	88.9	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.233			13C-OCDF	68.9	40 - 135	
OCDF	ND	0.196			CRS 37Cl-2,3,7,8-TCDD	90.1	40 - 135	
Totals								
Total TCDD	ND	0.0446			TEQ (Min):	0.000193		
Total PeCDD	ND	0.0451			a. Sample specific estimated detection limit			
Total HxCDD	ND	0.0833			b. Estimated maximum possible concentration.			
Total HpCDD	ND	0.129			c. Method detection limit			
Total TCDF	ND	0.0408			d. Lower control limit - upper control limit.			
Total PeCDF	ND	0.0486			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HxCDF	ND	0.0676						
Total HpCDF	ND	0.228						

Analyst: JMH

Approved By: Martha M. Maier 10-May-2006 13:26

OPR Results		EPA Method 8290				
Matrix:	Soil	QC Batch No.:	7989	Lab Sample:	0-OPR001	
Sample Size:	10.0 g	Date Extracted:	4-May-06	Date Analyzed DB-5:	5-May-06	
				Date Analyzed DB-225:	NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	10.9	7 - 13	IS 13C-2,3,7,8-TCDD	75.2	40 - 135
1,2,3,7,8-PeCDD	50.0	51.9	35 - 65	13C-1,2,3,7,8-PeCDD	78.2	40 - 135
1,2,3,4,7,8-HxCDD	50.0	52.2	35 - 65	13C-1,2,3,4,7,8-HxCDD	73.4	40 - 135
1,2,3,6,7,8-HxCDD	50.0	52.4	35 - 65	13C-1,2,3,6,7,8-HxCDD	78.9	40 - 135
1,2,3,7,8,9-HxCDD	50.0	52.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	66.8	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	52.3	35 - 65	13C-OCDD	41.5	40 - 135
OCDD	100	106	70 - 130	13C-2,3,7,8-TCDF	85.4	40 - 135
2,3,7,8-TCDF	10.0	10.2	7 - 13	13C-1,2,3,7,8-PeCDF	77.9	40 - 135
1,2,3,7,8-PeCDF	50.0	52.6	35 - 65	13C-2,3,4,7,8-PeCDF	77.1	40 - 135
2,3,4,7,8-PeCDF	50.0	51.9	35 - 65	13C-1,2,3,4,7,8-HxCDF	75.8	40 - 135
1,2,3,4,7,8-HxCDF	50.0	52.0	35 - 65	13C-1,2,3,6,7,8-HxCDF	73.0	40 - 135
1,2,3,6,7,8-HxCDF	50.0	52.0	35 - 65	13C-2,3,4,6,7,8-HxCDF	77.7	40 - 135
2,3,4,6,7,8-HxCDF	50.0	51.5	35 - 65	13C-1,2,3,7,8,9-HxCDF	65.9	40 - 135
1,2,3,7,8,9-HxCDF	50.0	52.6	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	65.3	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	52.2	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	64.3	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	52.8	35 - 65	13C-OCDF	44.1	40 - 135
OCDF	100	104	70 - 130	CRS 37Cl-2,3,7,8-TCDD	80.7	40 - 135

Analyst: JMH

Approved By: Martha M. Maier 10-May-2006 13:26

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 10, 2006

Alta Project I.D.: 27645

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the three soil samples received at Alta Analytical Laboratory on May 02, 2006 under your Project Name "Ft Bragg-Site Assessment 186320". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all data quality requirements set forth by NELAP for those applicable test methods. This report should not be reproduced or distributed without the written approval of ALTA.



Section I: Sample Inventory Report

Date Received: 5/2/2006

<u>Alta Lab. ID</u>	<u>Client Sample ID</u>
27645-001	DP-5.60-8
27645-002	DP-5.60-13
27645-003	DP-4.15-5

27645 2.9°C

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900
(510) 486-0532

Project Number: 186320
Site: Ft Bragg-Site Assessment

Subcontract Laboratory:
Alta Analytical Lab, Inc.
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 933-1640
ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker
*** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
DP-5.60-8	04/20 08:50	Soil	8290	186320-001	
DP-5.60-13	04/20 09:00	Soil	8290	186320-002	
DP-4.15-5	04/20 13:45	Soil	8290	186320-006	

Notes:	Relinquished By:	Received By:
	<i>[Signature]</i>	<i>[Signature]</i>
	Date/Time: 5-1-06 / 1700	Date/Time: 5/2/06 0957

Signature on this form constitutes a firm Purchase Order for the services requested above.

SAMPLE LOG-IN CHECKLIST

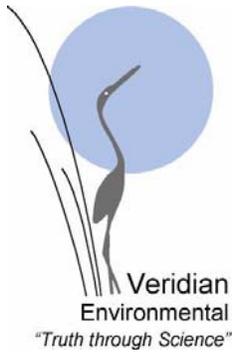
Alta Project #: 27645

Samples Arrival:	Date/Time 5/2/06 0957	Initials: JLB	Location: WR-2			
			Shelf/Rack: _____			
Logged In:	Date/Time 5/2/06 1402	Initials: FEB	Location: WR-2			
			Shelf/Rack: A-2			
Delivered By:	FedEx	UPS	<u>Cal</u>	DHL	Hand Delivered	Other
Preservation:	<u>Ice</u>	Blue Ice	Dry Ice	None		
Temp °C	2.9°C	Time:	1015	Thermometer ID: DT-20		

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill	Trk # C10129000026462		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓
Na ₂ S ₂ O ₃ Preservation Documented?		COC	Sample Container <u>None</u>
Shipping Container	Alta	<u>Client</u>	Retain <u>Return</u> Dispose

Comments:

samples received in clear glass jars



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT

***Georgia-Pacific
California Wood Products
Manufacturing Facility***

Laboratory Project IDs

- *Alta Analytical Laboratory, Inc.
#27646*
- *Curtis & Tompkins, Ltd.
#186378*

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on four soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-4.14-6	27646-001	27646	04/24/06	D
Soil	DP-5.62-9	27646-002	27646	04/24/06	D
Soil	DP-5.62-14	27646-003	27646	04/24/06	D
Soil	DP-5.62-4	27646-004	27646	04/24/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next

to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results			✓	
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			✓	

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. In addition, the samples were received in clear jars as opposed to amber jars as required by the method. This exception does not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Reported positive results have been qualified as qualitatively questionable (U) on the qualified analytical result forms, where warranted. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	<u>Concentration</u>
OCDD	1.93 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J” on the qualified analytical result forms.

According to the laboratory, the concentrations of the following analytes in the samples listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers.

<u>Sample</u>	<u>Analyte</u>
DP-4.14-6	Total TCDF, Total PeCDF, 1,2,3,6,7,8-HxCDF, and Total HxCDF
DP-5.62-9	1,2,3,6,7,8-HxCDF, 1,2,3,4,6,7,8-HpCDF, Total TCDF, Total PeCDF, Total HxCDF, and Total HpCDF
DP-5.62-4	1,2,3,6,7,8-HxCDF, 1,2,3,4,6,7,8-HpCDF, Total TCDF, Total PeCDF, Total HxCDF, and Total HpCDF

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

Sample ID(s)	SDG	Compound(s)	DV Qualifier	Reason(s)
DP-5.62-14	27646	OCDD	U	Positive result for analyte in laboratory method blank

In addition, all results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J”.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified minor aspects of the analytical data that required qualification due to laboratory method blank contamination and results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery

<u>Acronym</u>	<u>Definition</u>
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

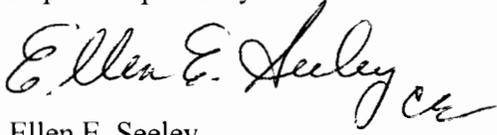
U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:



Ellen E. Seeley
Quality Assurance Chemist

Report Reviewed and Approved By:



William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULTS FORMS

Sample ID: DP-4.14-6

EPA Method 8290

Client Data		Sample Data		Laboratory Data				
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27646-001			
Project:	Ft Bragg-Site Assessment 186378	Sample Size:	15.7 g	QC Batch No.:	7989			
Date Collected:	24-Apr-06	%Solids:	43.1	Date Analyzed DB-5:	6-May-06			
Time Collected:	0900			Date Analyzed DB-225:	NA			
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	4.08				IS 13C-2,3,7,8-TCDD	76.9	40 - 135	
1,2,3,7,8-PeCDD	2.49	J		J	13C-1,2,3,7,8-PeCDD	79.1	40 - 135	
1,2,3,4,7,8-HxCDD	2.51	J		J	13C-1,2,3,4,7,8-HxCDD	76.0	40 - 135	
1,2,3,6,7,8-HxCDD	18.0				13C-1,2,3,6,7,8-HxCDD	83.0	40 - 135	
1,2,3,7,8,9-HxCDD	12.7				13C-1,2,3,4,6,7,8-HpCDD	97.0	40 - 135	
1,2,3,4,6,7,8-HpCDD	233				13C-OCDD	65.4	40 - 135	
OCDD	618			B	13C-2,3,7,8-TCDF	83.4	40 - 135	
2,3,7,8-TCDF	1.07				13C-1,2,3,7,8-PeCDF	85.4	40 - 135	
1,2,3,7,8-PeCDF	1.24	J		J	13C-2,3,4,7,8-PeCDF	85.5	40 - 135	
2,3,4,7,8-PeCDF	20.0	J		J	13C-1,2,3,4,7,8-HxCDF	74.0	40 - 135	
1,2,3,4,7,8-HxCDF	2.01	J		J	13C-1,2,3,6,7,8-HxCDF	68.7	40 - 135	
1,2,3,6,7,8-HxCDF	6.80	J		D	13C-2,3,4,6,7,8-HxCDF	80.2	40 - 135	
2,3,4,6,7,8-HxCDF	7.61	J		J	13C-1,2,3,7,8,9-HxCDF	85.1	40 - 135	
1,2,3,7,8,9-HxCDF	1.18	J		J	13C-1,2,3,4,6,7,8-HpCDF	80.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	15.2	J		J	13C-1,2,3,4,7,8,9-HpCDF	89.3	40 - 135	
1,2,3,4,7,8,9-HpCDF	0.646			J	13C-OCDF	71.8	40 - 135	
OCDF	8.30				CRS 37Cl-2,3,7,8-TCDD	79.0	40 - 135	
Totals								
Total TCDD	16.6				TEQ (Min):	24.4		
Total PeCDD	33.2				a. Sample specific estimated detection limit.			
Total HxCDD	190				b. Estimated maximum possible concentration.			
Total HpCDD	378				c. Method detection limit.			
Total TCDF	110			D	d. Lower control limit - upper control limit.			
Total PeCDF	237			D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HxCDF	118			D				
Total HpCDF	31.7			D				

Analyst: JMH

Approved By: Martha M. Maier 10-May-2006 14:12

EPA Method 8290

Sample ID: DP-5.62-9

Client Data

Name: Curtis & Tompkins, Ltd.
 Project: Ft Bragg-Site Assessment 186378
 Date Collected: 24-Apr-06
 Time Collected: 1300

Sample Data
 Matrix: Soil
 Sample Size: 10.2 g
 %Solids: 26.7

Laboratory Data
 Lab Sample: 27646-002
 QC Batch No.: 7989
 Date Analyzed DB-5: 6-May-06
 Date Received: 2-May-06
 Date Extracted: 4-May-06
 Date Analyzed DB-225: NA

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	5.56				13C-2,3,7,8-TCDD	63.4	40 - 135	
1,2,3,7,8-PeCDD	16.0				13C-1,2,3,7,8-PeCDD	66.3	40 - 135	
1,2,3,4,7,8-HxCDD	14.8				13C-1,2,3,4,7,8-HxCDD	68.2	40 - 135	
1,2,3,6,7,8-HxCDD	52.7				13C-1,2,3,6,7,8-HxCDD	69.6	40 - 135	
1,2,3,7,8,9-HxCDD	43.2				13C-1,2,3,4,6,7,8-HpCDD	82.0	40 - 135	
1,2,3,4,6,7,8-HpCDD	996				13C-OCDD	65.1	40 - 135	
OCDD	4200			B	13C-2,3,7,8-TCDF	70.5	40 - 135	
2,3,7,8-TCDF	2.70				13C-1,2,3,7,8-PeCDF	71.2	40 - 135	
1,2,3,7,8-PeCDF	2.13	J		J	13C-2,3,4,7,8-PeCDF	70.7	40 - 135	
2,3,4,7,8-PeCDF	24.3	J		J	13C-1,2,3,4,7,8-HxCDF	66.3	40 - 135	
1,2,3,4,7,8-HxCDF	8.11	J		J	13C-1,2,3,6,7,8-HxCDF	63.1	40 - 135	
1,2,3,6,7,8-HxCDF	10.1	J		D	13C-2,3,4,6,7,8-HxCDF	67.1	40 - 135	
2,3,4,6,7,8-HxCDF	14.0	J		J	13C-1,2,3,7,8,9-HxCDF	73.4	40 - 135	
1,2,3,7,8,9-HxCDF	3.10	J		J	13C-1,2,3,4,6,7,8-HpCDF	70.2	40 - 135	
1,2,3,4,6,7,8-HpCDF	133	J		D	13C-1,2,3,4,7,8,9-HpCDF	79.7	40 - 135	
1,2,3,4,7,8,9-HpCDF	8.01	J		J	13C-OCDF	67.7	40 - 135	
OCDF	422				CRS 37Cl-2,3,7,8-TCDD	64.2	40 - 135	

Totals		Toxic Equivalent Quotient (TEQ) Data ^e	
Total TCDD	24.8	TEQ (Min):	60.6
Total PeCDD	72.3	a. Sample specific estimated detection limit.	
Total HxCDD	467	b. Estimated maximum possible concentration	
Total HpCDD	1650	c. Method detection limit.	
Total TCDF	147	d. Lower control limit - upper control limit.	
Total PeCDF	324	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	
Total HxCDF	275		
Total HpCDF	400		

Analyst: JMH
 Approved By: Martha M. Maier
 Date: 10-May-2006 14:12

Sample ID: DP-5.62-14

EPA Method 8290

Client Data		Sample Data		Laboratory Data	
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27646-003
Project:	Fl Bragg-Site Assessment 186378	Sample Size:	30.6 g	QC Batch No.:	7989
Date Collected:	24-Apr-06	%Solids:	32.6	Date Analyzed DB-5:	6-May-06
Time Collected:	1310			Dates Analyzed DB-225:	2-May-06 4-May-06 8-May-06

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	0.218			J	13C-2,3,7,8-TCDD	64.9	40 - 135	
1,2,3,7,8-PeCDD	0.223			J	13C-1,2,3,7,8-PeCDD	69.4	40 - 135	
1,2,3,4,7,8-HxCDD	0.160			J	13C-1,2,3,4,7,8-HxCDD	70.2	40 - 135	
1,2,3,6,7,8-HxCDD	0.387			J	13C-1,2,3,6,7,8-HxCDD	72.7	40 - 135	
1,2,3,7,8,9-HxCDD	0.524			J	13C-1,2,3,4,6,7,8-HpCDD	80.4	40 - 135	
1,2,3,4,6,7,8-HpCDD	2.16			J	13C-OCDD	57.7	40 - 135	
OCDD	5.29			B	13C-2,3,7,8-TCDF	73.5	40 - 135	
2,3,7,8-TCDF	1.84			J	13C-1,2,3,7,8-PeCDF	72.8	40 - 135	
1,2,3,7,8-PeCDF	0.655			J	13C-2,3,4,7,8-PeCDF	74.5	40 - 135	
2,3,4,7,8-PeCDF	0.510			J	13C-1,2,3,4,7,8-HxCDF	66.4	40 - 135	
1,2,3,4,7,8-HxCDF	ND		0.214	J	13C-1,2,3,6,7,8-HxCDF	61.3	40 - 135	
1,2,3,6,7,8-HxCDF	0.239			J	13C-2,3,4,6,7,8-HxCDF	69.3	40 - 135	
2,3,4,6,7,8-HxCDF	0.205			J	13C-1,2,3,7,8,9-HxCDF	72.5	40 - 135	
1,2,3,7,8,9-HxCDF	0.471			J	13C-1,2,3,4,6,7,8-HpCDF	73.2	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.422			J	13C-1,2,3,4,7,8,9-HpCDF	82.7	40 - 135	
1,2,3,4,7,8,9-HpCDF	0.140			J	13C-OCDF	62.3	40 - 135	
OCDF	0.362			J	CRS 37Cl-2,3,7,8-TCDD	72.0	40 - 135	

Totals Toxic Equivalent Quotient (TEQ) Data^e

TEQ (Min):	1.14
a. Sample specific estimated detection limit. b. Estimated maximum possible concentration. c. Method detection limit. d. Lower control limit - upper control limit. e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	
Total TCDD	13.8
Total PeCDD	10.1
Total HxCDD	15.3
Total HpCDD	3.47
Total TCDF	33.9
Total PeCDF	6.52
Total HxCDF	2.29
Total HpCDF	0.756

Analyst: JMH

Approved By: Martha M. Maier 10-May-2006 14:12

Sample ID: DP-5.62-4

EPA Method 8290

Client Data		Sample Data		Laboratory Data	
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27646-004
Project:	FT Bragg-Site Assessment 186378	Sample Size:	18.0 g	QC Batch No.:	7989
Date Collected:	24-Apr-06	%Solids:	55.6	Date Analyzed DB-5:	6-May-06
Time Collected:	1350			Dates Analyzed DB-225:	2-May-06 4-May-06 8-May-06

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	4.11				IS 13C-2,3,7,8-TCDD	70.5	40 - 135	
1,2,3,7,8-PeCDD	24.0				13C-1,2,3,7,8-PeCDD	75.4	40 - 135	
1,2,3,4,7,8-HxCDD	24.9				13C-1,2,3,4,7,8-HxCDD	73.5	40 - 135	
1,2,3,6,7,8-HxCDD	81.8				13C-1,2,3,6,7,8-HxCDD	75.4	40 - 135	
1,2,3,7,8,9-HxCDD	51.8				13C-1,2,3,4,6,7,8-HpCDD	94.7	40 - 135	
1,2,3,4,6,7,8-HpCDD	1140				13C-OCDD	80.2	40 - 135	
OCDD	10100			B	13C-2,3,7,8-TCDF	78.2	40 - 135	
2,3,7,8-TCDF	3.33				13C-1,2,3,7,8-PeCDF	79.0	40 - 135	
1,2,3,7,8-PeCDF	2.92				13C-2,3,4,7,8-PeCDF	80.6	40 - 135	
2,3,4,7,8-PeCDF	9.01				13C-1,2,3,4,7,8-HxCDF	68.6	40 - 135	
1,2,3,4,7,8-HxCDF	12.7				13C-1,2,3,6,7,8-HxCDF	64.4	40 - 135	
1,2,3,6,7,8-HxCDF	11.2			D	13C-2,3,4,6,7,8-HxCDF	72.6	40 - 135	
2,3,4,6,7,8-HxCDF	14.4				13C-1,2,3,7,8,9-HxCDF	78.9	40 - 135	
1,2,3,7,8,9-HxCDF	2.94				13C-1,2,3,4,6,7,8-HpCDF	76.9	40 - 135	
1,2,3,4,6,7,8-HpCDF	253			D	13C-1,2,3,4,7,8,9-HpCDF	87.0	40 - 135	
1,2,3,4,7,8,9-HpCDF	14.2				13C-OCDF	77.1	40 - 135	
OCDF	804				CRS 37Cl-2,3,7,8-TCDD	68.6	40 - 135	

Toxic Equivalent Quotient (TEQ) Data ^e	
Totals	
Total TCDD	26.9
Total PeCDD	79.7
Total HxCDD	492
Total HpCDD	1910
Total TCDF	68.7
Total PeCDF	145
Total HxCDF	340
Total HpCDF	749
TEQ (Min):	68.2

a. Sample specific estimated detection limit.
b. Estimated maximum possible concentration.
c. Method detection limit.
d. Lower control limit - upper control limit.
e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)

Analyst: JMH

Approved By: Martha M. Maier 10-May-2006 14:12

ATTACHMENT B
SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Reviewed By: E. Deebey

Sample Collection Dates: 4/24/06

Approved By: WJK

Client: Acton Mickelson Environmental, Inc.

Completion Date: 7/10/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: _____

*Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	(1)	✓
Laboratory Method Blank Results	✓	(2)	✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓	(3)	✓
Verification of the EDD in XLS Format	✓		✓

Comments:

(1) Samples were received in clear glass jars instead of the method-specified amber jars.

(2) OCDD was present in the Method Blank.

(3) Sample concentrations as reported were below the calibration range of the instrument. Also, diphenylether interference was present in one or more samples.

Curtis & Tompkins SDG: 186378

Method Blank

EPA Method 8290

Matrix:	Soil	QC Batch No.:	7989	Lab Sample:	0-MB001	Date Analyzed DB-5:	5-May-06	Date Analyzed DB-225:	NA
Sample Size:	10.0 g	Date Extracted:	4-May-06						
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers	
2,3,7,8-TCDD	ND	0.0446			IS 13C-2,3,7,8-TCDD	93.3	40 - 135		
1,2,3,7,8-PeCDD	ND	0.0451			13C-1,2,3,7,8-PeCDD	86.7	40 - 135		
1,2,3,4,7,8-HxCDD	ND	0.0830			13C-1,2,3,4,7,8-HxCDD	86.1	40 - 135		
1,2,3,6,7,8-HxCDD	ND	0.0830			13C-1,2,3,6,7,8-HxCDD	90.5	40 - 135		
1,2,3,7,8,9-HxCDD	ND	0.0838			13C-1,2,3,4,6,7,8-HpCDD	90.8	40 - 135		
1,2,3,4,6,7,8-HpCDD	ND	0.129			13C-OCDD	67.8	40 - 135		
OCDD	1.93			J	13C-2,3,7,8-TCDF	100	40 - 135		
2,3,7,8-TCDF	ND	0.0408			13C-1,2,3,7,8-PeCDF	88.0	40 - 135		
1,2,3,7,8-PeCDF	ND	0.0496			13C-2,3,4,7,8-PeCDF	87.6	40 - 135		
2,3,4,7,8-PeCDF	ND	0.0475			13C-1,2,3,4,7,8-HxCDF	84.7	40 - 135		
1,2,3,4,7,8-HxCDF	ND	0.0590			13C-1,2,3,6,7,8-HxCDF	83.5	40 - 135		
1,2,3,6,7,8-HxCDF	ND	0.0535			13C-2,3,4,6,7,8-HxCDF	88.2	40 - 135		
2,3,4,6,7,8-HxCDF	ND	0.0608			13C-1,2,3,7,8,9-HxCDF	84.7	40 - 135		
1,2,3,7,8,9-HxCDF	ND	0.0970			13C-1,2,3,4,6,7,8-HpCDF	85.3	40 - 135		
1,2,3,4,6,7,8-HpCDF	ND	0.222			13C-1,2,3,4,7,8,9-HpCDF	88.9	40 - 135		
1,2,3,4,7,8,9-HpCDF	ND	0.233			13C-OCDF	68.9	40 - 135		
OCDF	ND	0.196			CRS 37Cl-2,3,7,8-TCDD	90.1	40 - 135		
Totals					Toxic Equivalent Quotient (TEQ) Data	e			
Total TCDD	ND	0.0446			TEQ (Min):	0.000193			
Total PeCDD	ND	0.0451			a. Sample specific estimated detection limit.				
Total HxCDD	ND	0.0833			b. Estimated maximum possible concentration.				
Total HpCDD	ND	0.129			c. Method detection limit				
Total TCDF	ND	0.0408			d. Lower control limit - upper control limit.				
Total PeCDF	ND	0.0486			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)				
Total HxCDF	ND	0.0676							
Total HpCDF	ND	0.228							

Analyst: JMH

Approved By: Martha M. Maier 10-May-2006 14:12

EPA Method 8290

OPR Results

Matrix: Soil		QC Batch No.: 7989	Lab Sample: 0-OPR001	Date Analyzed DB-225: NA		
Sample Size: 10.0 g		Date Extracted: 4-May-06	Date Analyzed DB-5: 5-May-06	Date Analyzed DB-225: NA		
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	10.9	7 - 13	<u>IS</u> 13C-2,3,7,8-TCDD	75.2	40 - 135
1,2,3,7,8-PeCDD	50.0	51.9	35 - 65	13C-1,2,3,7,8-PeCDD	78.2	40 - 135
1,2,3,4,7,8-HxCDD	50.0	52.2	35 - 65	13C-1,2,3,4,7,8-HxCDD	73.4	40 - 135
1,2,3,6,7,8-HxCDD	50.0	52.4	35 - 65	13C-1,2,3,6,7,8-HxCDD	78.9	40 - 135
1,2,3,7,8,9-HxCDD	50.0	52.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	66.8	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	52.3	35 - 65	13C-OCDD	41.5	40 - 135
OCDD	100	106	70 - 130	13C-2,3,7,8-TCDF	85.4	40 - 135
2,3,7,8-TCDF	10.0	10.2	7 - 13	13C-1,2,3,7,8-PeCDF	77.9	40 - 135
1,2,3,7,8-PeCDF	50.0	52.6	35 - 65	13C-2,3,4,7,8-PeCDF	77.1	40 - 135
2,3,4,7,8-PeCDF	50.0	51.9	35 - 65	13C-1,2,3,4,7,8-HxCDF	75.8	40 - 135
1,2,3,4,7,8-HxCDF	50.0	52.0	35 - 65	13C-1,2,3,6,7,8-HxCDF	73.0	40 - 135
1,2,3,6,7,8-HxCDF	50.0	52.0	35 - 65	13C-2,3,4,6,7,8-HxCDF	77.7	40 - 135
2,3,4,6,7,8-HxCDF	50.0	51.5	35 - 65	13C-1,2,3,7,8,9-HxCDF	65.9	40 - 135
1,2,3,7,8,9-HxCDF	50.0	52.6	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	65.3	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	52.2	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	64.3	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	52.8	35 - 65	13C-OCDF	44.1	40 - 135
OCDF	100	104	70 - 130	<u>CRS</u> 37Cl-2,3,7,8-TCDD	80.7	40 - 135

Analyst: JMH

Approved By: Martha M. Maier 10-May-2006 14:12

APPENDIX C

CASE NARRATIVES AND

CHAIN-OF-CUSTODY RECORDS

May 10, 2006

Alta Project I.D.: 27646

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the four soil samples received at Alta Analytical Laboratory on May 02, 2006 under your Project Name "Ft Bragg-Site Assessment 186378". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for this applicable test method. This report should not be reproduced, except in full, without the written approval of ALTA.



Section I: Sample Inventory Report

Date Received: 5/2/2006

<u>Alta Lab. ID</u>	<u>Client Sample ID</u>
27646-001	DP-4.14-6
27646-002	DP-5.62-9
27646-003	DP-5.62-14
27646-004	DP-5.62-4

27646

2.9°C

Curtis & Tompkins, Ltd.
 Analytical Laboratories, Since 1878
 2323 Fifth Street
 Berkeley, CA 94710
 (510) 486-0900
 (510) 486-0532

Project Number: 186378
 Site: Ft Bragg-Site Assessment

Subcontract Laboratory:
 Alta Analytical Lab, Inc.
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 933-1640
 ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker
 *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
DP-4.14-6	04/24 09:00	Soil	8290	186378-001	
DP-5.62-9	04/24 13:00	Soil	8290	186378-004	
P-5.62-14	04/24 13:10	Soil	8290	186378-005	
DP-5.62+4	04/24 13:50	Soil	8290	186378-009	

Notes:	Relinquished By:	Received By:
	<i>[Signature]</i>	<i>[Signature]</i>
	Date/Time: 5-1-06/1700	Date/Time: 5/1/06 0957

Signature on this form constitutes a firm Purchase Order for the services requested above.

SAMPLE LOG-IN CHECKLIST

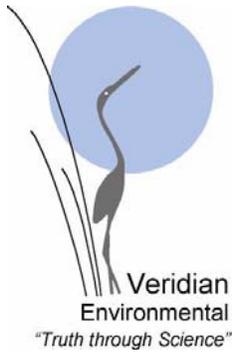
Alta Project #: 27646

Samples Arrival:	Date/Time <u>5/2/06 0957</u>	Initials: <u>VB</u>	Location: <u>WR-2</u> Shelf/Rack: _____			
Logged In:	Date/Time <u>5/2/06 1413</u>	Initials: <u>FEB</u>	Location: <u>WR-2</u> Shelf/Rack: <u>A-3</u>			
Delivered By:	FedEx	UPS	<u>Cal</u>	DHL	Hand Delivered	Other
Preservation:	<u>Ice</u>	Blue Ice	Dry Ice	None		
Temp °C	<u>2.9°C</u>	Time:	<u>1015</u>	Thermometer ID: DT-20		

	YES	NO	NA		
Adequate Sample Volume Received?	✓				
Holding Time Acceptable?	✓				
Shipping Container(s) Intact?	✓				
Shipping Custody Seals Intact?			✓		
Shipping Documentation Present?	✓				
Airbill	✓				
Trk # <u>C10129000026462</u>					
Sample Container Intact?	✓				
Sample Custody Seals Intact?			✓		
Chain of Custody / Sample Documentation Present?	✓				
COC Anomaly/Sample Acceptance Form completed?		✓			
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓		
Na ₂ S ₂ O ₃ Preservation Documented?			<u>None</u>		
Shipping Container	Alta	<u>Client</u>	Retain	<u>Return</u>	Dispose

Comments:

Samples received in clear glass jars



July 11, 2006

Prepared for:

Mr. Jeff Heglie
 Acton Mickelson Environmental, Inc.
 5175 Hillsdale Circle, Suite 100
 El Dorado Hills, California 95762

DATA VALIDATION REPORT
Georgia-Pacific
California Wood Products
Manufacturing Facility
Laboratory Project IDs

- *Alta Analytical Laboratory, Inc.*
#27647
- *Curtis & Tompkins, Ltd.*
#186403

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on three soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-5.63-12	27647-001	27647	04/25/06	D
Soil	DP-4.9-4.5	27647-002	27647	04/25/06	D
Soil	DP-4.9-10	27647-003	27647	04/25/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the

qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letters and Chain-of-Custody Records are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results			✓	
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification of Target Compounds			✓	
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. It was noted that the samples were received in clear jars as opposed to amber jars as required by the method. However, these exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Reported positive results have been qualified as qualitatively questionable (U) on the qualified results forms, where warranted. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	<u>Concentration</u>
OCDD	1.93 pg/g

Identification of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J” on the qualified results forms.

According to the laboratory, the concentrations of the following analytes in the samples listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers. Qualification of the data was not warranted on this basis.

<u>Sample</u>	<u>Analyte</u>
DP-5.63-12	Total TCDF, Total PeCDF, 1,2,3,6,7,8-HxCDF, and Total HxCDF
DP-4.9-4.5	Total TCDF and Total PeCDF

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

Sample ID(s)	SDG	Compound(s)	DV Qualifier	Reason(s)
DP-4.9-10	27647	OCDD	U	Positive result for analyte in laboratory method blank

In addition, all results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J”.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified minor aspects of the analytical data that required qualification due to laboratory method blank contamination and results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans

<u>Acronym</u>	<u>Definition</u>
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:



Ellen E. Seeley
Quality Assurance Chemist

Report Reviewed and Approved By:



William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP-5.63-12

EPA Method 8290

Client Data		Sample Data		Laboratory Data			
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27647-001		
Project:	Ft Bragg-Site Assessment 186403	Sample Size:	13.2 g	QC Batch No.:	7989		
Date Collected:	25-Apr-06	%Solids:	76.1	Date Analyzed DB-5:	6-May-06		
Time Collected:	0900			Date Analyzed DB-225:	8-May-06		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	10.0			IS 13C-2,3,7,8-TCDD	75.2	40 - 135	
1,2,3,7,8-PeCDD	1.70	J		13C-1,2,3,7,8-PeCDD	81.0	40 - 135	J
1,2,3,4,7,8-HxCDD	1.67	J		13C-1,2,3,4,7,8-HxCDD	77.2	40 - 135	J
1,2,3,6,7,8-HxCDD	5.28			13C-1,2,3,6,7,8-HxCDD	83.1	40 - 135	
1,2,3,7,8,9-HxCDD	3.39			13C-1,2,3,4,6,7,8-HpCDD	95.1	40 - 135	
1,2,3,4,6,7,8-HpCDD	84.1			13C-OCDD	68.3	40 - 135	
OCDD	553			13C-2,3,7,8-TCDF	81.1	40 - 135	B
2,3,7,8-TCDF	1.53			13C-1,2,3,7,8-PeCDF	82.0	40 - 135	
1,2,3,7,8-PeCDF	0.939	J		13C-2,3,4,7,8-PeCDF	84.3	40 - 135	J
2,3,4,7,8-PeCDF	24.8	J		13C-1,2,3,4,7,8-HxCDF	73.5	40 - 135	J
1,2,3,4,7,8-HxCDF	2.28	J		13C-1,2,3,6,7,8-HxCDF	68.1	40 - 135	J
1,2,3,6,7,8-HxCDF	4.34	J		13C-2,3,4,6,7,8-HxCDF	77.9	40 - 135	D
2,3,4,6,7,8-HxCDF	9.42	J		13C-1,2,3,7,8,9-HxCDF	83.5	40 - 135	J
1,2,3,7,8,9-HxCDF	1.39	J		13C-1,2,3,4,6,7,8-HpCDF	79.7	40 - 135	J
1,2,3,4,6,7,8-HpCDF	28.7	J		13C-1,2,3,4,7,8,9-HpCDF	95.4	40 - 135	J
1,2,3,4,7,8,9-HpCDF	1.47			13C-OCDF	75.0	40 - 135	
OCDF	65.8			CRS 37Cl-2,3,7,8-TCDD	75.7	40 - 135	
Totals							
Total TCDD	19.2			Toxic Equivalent Quotient (TEQ) Data^e			
Total PeCDD	15.3			TEQ (Min):	28.3		
Total HxCDD	45.7			a. Sample specific estimated detection limit			
Total HpCDD	154			b. Estimated maximum possible concentration.			
Total TCDF	106		D	c. Method detection limit.			
Total PeCDF	287		D	d. Lower control limit - upper control limit.			
Total HxCDF	148		D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HpCDF	79.4		D				

Analyst: JMH

Approved By: Martha M. Maier 09-May-2006 15:42

Sample ID: DP-4.9-4.5

EPA Method 8290

Client Data		Sample Data		Laboratory Data	
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27647-002
Project:	Fl Bragg-Site Assessment 186403	Sample Size:	18.7 g	QC Batch No.:	7989
Date Collected:	25-Apr-06	%Solids:	53.7	Date Analyzed DB-5:	6-May-06
Time Collected:	1400			Date Analyzed DB-225:	NA

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	0.253			J	13C-2,3,7,8-TCDD	75.3	40 - 135	
1,2,3,7,8-PeCDD	0.421			J	13C-1,2,3,7,8-PeCDD	80.7	40 - 135	
1,2,3,4,7,8-HxCDD	0.325			J	13C-1,2,3,4,7,8-HxCDD	82.1	40 - 135	
1,2,3,6,7,8-HxCDD	2.41			J	13C-1,2,3,6,7,8-HxCDD	83.3	40 - 135	
1,2,3,7,8,9-HxCDD	1.01			J	13C-1,2,3,4,6,7,8-HpCDD	93.1	40 - 135	
1,2,3,4,6,7,8-HpCDD	29.9				13C-OCDD	69.2	40 - 135	
OCDD	215			B	13C-2,3,7,8-TCDF	87.3	40 - 135	
2,3,7,8-TCDF	0.996				13C-1,2,3,7,8-PeCDF	87.4	40 - 135	
1,2,3,7,8-PeCDF	0.406			J	13C-2,3,4,7,8-PeCDF	88.2	40 - 135	
2,3,4,7,8-PeCDF	1.21			J	13C-1,2,3,4,7,8-HxCDF	78.4	40 - 135	
1,2,3,4,7,8-HxCDF	0.451			J	13C-1,2,3,6,7,8-HxCDF	72.8	40 - 135	
1,2,3,6,7,8-HxCDF	0.515			J	13C-2,3,4,6,7,8-HxCDF	82.5	40 - 135	
2,3,4,6,7,8-HxCDF	0.704			J	13C-1,2,3,7,8,9-HxCDF	87.5	40 - 135	
1,2,3,7,8,9-HxCDF	0.161			J	13C-1,2,3,4,6,7,8-HpCDF	83.3	40 - 135	
1,2,3,4,6,7,8-HpCDF	6.53				13C-1,2,3,4,7,8,9-HpCDF	95.9	40 - 135	
1,2,3,4,7,8,9-HpCDF	0.383			J	13C-OCDF	72.9	40 - 135	
OCDF	18.5				CRS 37Cl-2,3,7,8-TCDD	81.0	40 - 135	

Totals		Toxic Equivalent Quotient (TEQ) Data ^e	
Total TCDD	3.77	TEQ (Min):	2.35
Total PeCDD	4.33		
Total HxCDD	21.0	a. Sample specific estimated detection limit.	
Total HpCDD	59.3	b. Estimated maximum possible concentration.	
Total TCDF	18.1	c. Method detection limit.	
Total PeCDF	14.8	d. Lower control limit - upper control limit.	
Total HxCDF	13.3	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	
Total HpCDF	18.5		

Approved By: JM
 Analyst: JMH
 Approved By: Martha M. Maier 09-May-2006 15:42

Sample ID: DP-4.9-10 **EPA Method 8290**

Client Data
 Name: Curtis & Tompkins, Ltd.
 Project: Ft Bragg-Site Assessment 186403
 Date Collected: 25-Apr-06
 Time Collected: 1410

Laboratory Data
 Lab Sample: 27647-003
 QC Batch No.: 7989
 Date Analyzed DB-5: 6-May-06
 Date Received: 2-May-06
 Date Extracted: 4-May-06
 Date Analyzed DB-225: NA

Sample Data		DL^a		EMPC^b		Qualifiers			
Matrix:	Soil	Matrix:	Soil	Matrix:	Soil	Matrix:	Soil		
Sample Size:	12.4 g	Sample Size:	12.4 g	%Solids:	80.4	%Solids:	80.4		
Analyte		Conc. (pg/g)	DL^a	EMPC^b	Qualifiers	Labeled Standard	%R	LCL-UCL^d	Qualifiers
2,3,7,8-TCDD	ND	0.151				IS 13C-2,3,7,8-TCDD	70.9	40 - 135	
1,2,3,7,8-PeCDD	ND	0.109				13C-1,2,3,7,8-PeCDD	72.4	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.0417				13C-1,2,3,4,7,8-HxCDD	74.1	40 - 135	
1,2,3,6,7,8-HxCDD	0.168				J	13C-1,2,3,6,7,8-HxCDD	77.2	40 - 135	
1,2,3,7,8,9-HxCDD	0.119				J	13C-1,2,3,4,6,7,8-HpCDD	77.7	40 - 135	
1,2,3,4,6,7,8-HpCDD	1.25				J	13C-OCDD	63.4	40 - 135	
OCDD	6.79				B	13C-2,3,7,8-TCDF	77.0	40 - 135	
2,3,7,8-TCDF	0.928					13C-1,2,3,7,8-PeCDF	77.5	40 - 135	
1,2,3,7,8-PeCDF	0.227				J	13C-2,3,4,7,8-PeCDF	78.4	40 - 135	
2,3,4,7,8-PeCDF	0.352				J	13C-1,2,3,4,7,8-HxCDF	71.7	40 - 135	
1,2,3,4,7,8-HxCDF	0.0841				J	13C-1,2,3,6,7,8-HxCDF	68.6	40 - 135	
1,2,3,6,7,8-HxCDF	0.0728				J	13C-2,3,4,6,7,8-HxCDF	75.2	40 - 135	
2,3,4,6,7,8-HxCDF	0.0826				J	13C-1,2,3,7,8,9-HxCDF	76.8	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0231				13C-1,2,3,4,6,7,8-HpCDF	72.8	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.288				J	13C-1,2,3,4,7,8,9-HpCDF	81.6	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.0255				13C-OCDF	66.7	40 - 135	
OCDF	0.603				J	CRS 37Cl-2,3,7,8-TCDD	76.0	40 - 135	

Toxic Equivalent Quotient (TEQ) Data^e

TEQ (Min): 0.349

a. Sample specific estimated detection limit.
 b. Estimated maximum possible concentration.
 c. Method detection limit.
 d. Lower control limit - upper control limit.
 e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)

Totals	Conc. (pg/g)	DL^a	EMPC^b	Qualifiers
Total TCDD	1.60			
Total PeCDD	0.935			
Total HxCDD	1.54			
Total HpCDD	2.32			
Total TCDF	14.1			
Total PeCDF	2.69			
Total HxCDF	0.739			
Total HpCDF	0.565			

Analyst: JMH
 Approved By: Martha M. Maier
 Date: 09-May-2006 15:42

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Reviewed By: E. Deelen

Sample Collection Dates: 4/25/06

Approved By: WJK

Client: Acton Mickelson Environmental, Inc.

Completion Date: 7/10/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 27647

*Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	(1)	✓
Laboratory Method Blank Results	✓	(2)	✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓	(3)	✓
Verification of the EDD in XLS Format	✓		✓

Comments:

- (1) Samples were received in clear glass jars, instead of the method-specified amber jars.
- (2) OCDD was present in the Method Blank.
- (3) Sample concentrations were below the calibration range of the instrument. Also, diphenylether interference was observed in one or more samples.

Curtis & Tompkins SDG: 186403

Method Blank		EPA Method 8290					
Matrix:	Soil	QC Batch No.:	7989	Lab Sample:	0-MB001		
Sample Size:	10.0 g	Date Extracted:	4-May-06	Date Analyzed DB-5:	5-May-06		
				Date Analyzed DB-225:	NA		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0446		IS 13C-2,3,7,8-TCDD	93.3	40 - 135	
1,2,3,7,8-PeCDD	ND	0.0451		13C-1,2,3,7,8-PeCDD	86.7	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.0830		13C-1,2,3,4,7,8-HxCDD	86.1	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.0830		13C-1,2,3,6,7,8-HxCDD	90.5	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.0838		13C-1,2,3,4,6,7,8-HpCDD	90.8	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.129		13C-OCDD	67.8	40 - 135	
OCDD	1.93			13C-2,3,7,8-TCDF	100	40 - 135	
2,3,7,8-TCDF	ND	0.0408		13C-1,2,3,7,8-PeCDF	88.0	40 - 135	
1,2,3,7,8-PeCDF	ND	0.0496		13C-2,3,4,7,8-PeCDF	87.6	40 - 135	
2,3,4,7,8-PeCDF	ND	0.0475		13C-1,2,3,4,7,8-HxCDF	84.7	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0590		13C-1,2,3,6,7,8-HxCDF	83.5	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0535		13C-2,3,4,6,7,8-HxCDF	88.2	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0608		13C-1,2,3,7,8,9-HxCDF	84.7	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0970		13C-1,2,3,4,6,7,8-HpCDF	85.3	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND	0.222		13C-1,2,3,4,7,8,9-HpCDF	88.9	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.233		13C-OCDF	68.9	40 - 135	
OCDF	ND	0.196		CRS 37Cl-2,3,7,8-TCDD	90.1	40 - 135	
Totals							
Total TCDD	ND	0.0446		TEQ (Min):	0.000193		
Total PeCDD	ND	0.0451		a. Sample specific estimated detection limit.			
Total HxCDD	ND	0.0833		b. Estimated maximum possible concentration.			
Total HpCDD	ND	0.129		c. Method detection limit.			
Total TCDF	ND	0.0408		d. Lower control limit - upper control limit.			
Total PeCDF	ND	0.0486		e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HxCDF	ND	0.0676					
Total HpCDF	ND	0.228					

Analyst: MAS

Approved By:

Martha M. Maier 09-May-2006 15:42

EPA Method 8290

OPR Results

Matrix: Soil		QC Batch No.: 7989	Lab Sample: 0-OPR001
Sample Size: 10.0 g		Date Extracted: 4-May-06	Date Analyzed DB-225: NA
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard
2,3,7,8-TCDD	10.0	7 - 13	<u>IS</u> 13C-2,3,7,8-TCDD
1,2,3,7,8-PeCDD	50.0	35 - 65	13C-1,2,3,7,8-PeCDD
1,2,3,4,7,8-HxCDD	50.0	35 - 65	13C-1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD	50.0	35 - 65	13C-1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD	50.0	35 - 65	13C-1,2,3,4,6,7,8-HpCDD
1,2,3,4,6,7,8-HpCDD	50.0	35 - 65	13C-OCDD
OCDD	100	70 - 130	13C-2,3,7,8-TCDF
2,3,7,8-TCDF	10.0	7 - 13	13C-1,2,3,7,8-PeCDF
1,2,3,7,8-PeCDF	50.0	35 - 65	13C-2,3,4,7,8-PeCDF
2,3,4,7,8-PeCDF	50.0	35 - 65	13C-1,2,3,4,7,8-HxCDF
1,2,3,4,7,8-HxCDF	50.0	35 - 65	13C-1,2,3,6,7,8-HxCDF
1,2,3,6,7,8-HxCDF	50.0	35 - 65	13C-2,3,4,6,7,8-HxCDF
2,3,4,6,7,8-HxCDF	50.0	35 - 65	13C-1,2,3,7,8,9-HxCDF
1,2,3,7,8,9-HxCDF	50.0	35 - 65	13C-1,2,3,4,6,7,8-HpCDF
1,2,3,4,6,7,8-HpCDF	50.0	35 - 65	13C-1,2,3,4,7,8,9-HpCDF
1,2,3,4,7,8,9-HpCDF	50.0	35 - 65	13C-OCDF
OCDF	100	70 - 130	<u>CRS</u> 37Cl-2,3,7,8-TCDD
			%R
			LCL-UCL
			75.2
			40 - 135
			78.2
			40 - 135
			73.4
			40 - 135
			78.9
			40 - 135
			66.8
			40 - 135
			41.5
			40 - 135
			85.4
			40 - 135
			77.9
			40 - 135
			77.1
			40 - 135
			75.8
			40 - 135
			73.0
			40 - 135
			77.7
			40 - 135
			65.9
			40 - 135
			65.3
			40 - 135
			64.3
			40 - 135
			44.1
			40 - 135
			80.7
			40 - 135

Analyst: JMH

Approved By: Martha M. Maier 09-May-2006 15:42

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 10, 2006

Alta Project I.D.: 27647

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the three soil samples received at Alta Analytical Laboratory on May 02, 2006 under your Project Name "Ft. Bragg-Site Assessment 186403". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.



Section I: Sample Inventory Report

Date Received: 5/2/2006

<u>Alta Lab. ID</u>	<u>Client Sample ID</u>
27647-001	DP-5.63-12
27647-002	DP-4.9-4.5
27647-003	DP-4.9-10

27647

2.9°C

Curtis & Tompkins, Ltd.
 Analytical Laboratories, Since 1878
 2323 Fifth Street
 Berkeley, CA 94710
 (510) 486-0900
 (510) 486-0532

Project Number: 186403
 Site: Ft Bragg-Site Assessment

Subcontract Laboratory:
 Alta Analytical Lab, Inc.
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 933-1640
 ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker
 *** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
DP-5.63-12	04/25 09:00	Soil	8290	186403-001	
7P-4.9-4.5	04/25 14:00	Soil	8290	186403-004	
P-4.9-10	04/25 14:10	Soil	8290	186403-005	

Notes:	Relinquished By:	Received By:
	<i>Amy M. [Signature]</i>	<i>Bethma G. Benedict</i>
	Date/Time: 5-1-06/1700	Date/Time: 5/2/06 0957

Signature on this form constitutes a firm Purchase Order for the services requested above.

SAMPLE LOG-IN CHECKLIST

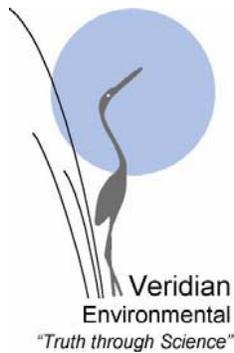
Alta Project #: 27647

Samples Arrival:	Date/Time 5/2/06 0957	Initials: JLB	Location: WR-2 Shelf/Rack: _____			
Logged In:	Date/Time 5/2/06 1423	Initials: FEB	Location: WR-2 Shelf/Rack: A-3			
Delivered By:	FedEx	UPS	<u>Cal</u>	DHL	Hand Delivered	Other
Preservation:	<u>Ice</u>	Blue Ice	Dry Ice	None		
Temp °C	2.9°C	Time:	1015	Thermometer ID: DT-20		

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill	Trk # C10129000026462		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓
Na ₂ S ₂ O ₃ Preservation Documented?	COC	Sample Container	<u>None</u>
Shipping Container	Alta	<u>Client</u>	Retain
		<u>Return</u>	Dispose

Comments:

Samples received in clear glass jars



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT

***Georgia-Pacific
California Wood Products
Manufacturing Facility***

Laboratory Project ID:

- *Alta Analytical Laboratory, Inc.
#27669*
- *Curtis & Tompkins, Ltd.
#186609*

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on five samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	SL-7.1-0.6	27669-001	27669	05/03/06	D
Soil	SL-7.2-0.6	27669-002	27669	05/03/06	D
Soil	SL-7.3-0.6	27669-003	27669	05/03/06	D
Soil	AS-7.1-GRASS	27669-004	27669	05/03/06	D
Soil	AS-7.2-GRASS	27669-005	27669	05/03/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results			✓	
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Identification and Quantitation of Target Compounds			✓	
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis and Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.5°C) of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^\circ\text{C}$. In addition, samples AS-7.1-GRASS and AS-7.2-GRASS were received in clear jars as opposed to amber jars as required by the method. These exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analytes were reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Reported positive results have been qualified as qualitatively questionable (U) or as biased high (J+) on the qualified results forms, where warranted. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	<u>Concentration</u>
1,2,3,4,7,8-HxCDF	0.124 pg/g
1,2,3,6,7,8-HxCDF	0.0834 pg/g
1,2,3,4,6,7,8-HpCDF	0.545 pg/g
OCDF	0.508 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J” on the qualified results forms.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

Sample ID(s)	SDG	Compound(s)	DV Qualifier	Reason(s)
SL-7.2-0.6	27669	1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,4,6,7,8-HpCDF	U	Positive result for analyte in laboratory method blank

Sample ID(s)	SDG	Compound(s)	DV Qualifier	Reason(s)
SL-7.2-0.6 (cont.)	27669	Total HxCDF Total HpCDF	J+	Positive result for congener in laboratory method blank
AS-7.1-GRASS	27669	1,2,3,4,6,7,8-HpCDF OCDF	U	Positive result for analyte in laboratory method blank
		Total HxCDF Total HpCDF	J+	Positive result for congener in laboratory method blank
AS-7.2-GRASS	27669	1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,4,6,7,8-HpCDF	U	Positive result for analyte in laboratory method blank
		Total HxCDF Total HpCDF	J+	Positive result for congener in laboratory method blank

In addition, all results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J”.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified minor aspects of the analytical data that required qualification due to laboratory method blank contamination and results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

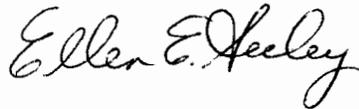
U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

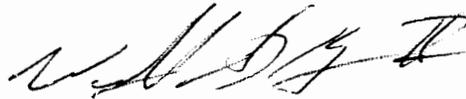
7.0 Signatures

Report Prepared By:



Ellen E. Seeley
Quality Assurance Chemist

Report Reviewed and Approved By:



William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: SL-7.1-0.6		EPA Method 8290						
Client Data		Sample Data		Laboratory Data				
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample: 27669-001				
Project:	Ft Bragg-Site Assessment 186609	Sample Size:	10.7 g	Date Received: 6-May-06				
Date Collected:	3-May-06	%Solids:	94.3	QC Batch No.: 8024				
Time Collected:	0845			Date Analyzed: 15-May-06				
				Date Analyzed DB-5: 17-May-06				
				Dates Analyzed DB-225: 19-May-06				
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	3.53				IS 13C-2,3,7,8-TCDD	75.0	40 - 135	
1,2,3,7,8-PeCDD	7.86				13C-1,2,3,7,8-PeCDD	62.2	40 - 135	
1,2,3,4,7,8-HxCDD	4.99				13C-1,2,3,4,7,8-HxCDD	81.0	40 - 135	
1,2,3,6,7,8-HxCDD	9.51				13C-1,2,3,6,7,8-HxCDD	81.9	40 - 135	
1,2,3,7,8,9-HxCDD	6.82				13C-1,2,3,4,6,7,8-HpCDD	76.0	40 - 135	
1,2,3,4,6,7,8-HpCDD	78.4				13C-OCDD	53.0	40 - 135	
OCDD	470				13C-2,3,7,8-TCDF	83.4	40 - 135	
2,3,7,8-TCDF	25.1				13C-1,2,3,7,8-PeCDF	69.2	40 - 135	
1,2,3,7,8-PeCDF	12.3				13C-2,3,4,7,8-PeCDF	66.5	40 - 135	
2,3,4,7,8-PeCDF	18.4				13C-1,2,3,4,7,8-HxCDF	77.0	40 - 135	
1,2,3,4,7,8-HxCDF	6.27			B	13C-1,2,3,6,7,8-HxCDF	67.0	40 - 135	
1,2,3,6,7,8-HxCDF	7.23			B	13C-2,3,4,6,7,8-HxCDF	74.6	40 - 135	
2,3,4,6,7,8-HxCDF	8.29				13C-1,2,3,7,8,9-HxCDF	77.4	40 - 135	
1,2,3,7,8,9-HxCDF	2.62				13C-1,2,3,4,6,7,8-HpCDF	66.6	40 - 135	
1,2,3,4,6,7,8-HpCDF	16.9			B	13C-1,2,3,4,7,8,9-HpCDF	56.8	40 - 135	
1,2,3,4,7,8,9-HpCDF	2.48			J	13C-OCDF	46.6	40 - 135	
OCDF	32.1			B	CRS 37Cl-2,3,7,8-TCDD	73.6	40 - 135	
Totals								
Total TCDD	111							
Total PeCDD	122							
Total HxCDD	143							
Total HpCDD	166							
Total TCDF	468							
Total PeCDF	195			B				
Total HxCDF	74.4			B				
Total HpCDF	37.3			B				
Toxic Equivalent Quotient (TEQ) Data ^c								
TEQ (Min):		29.3						
a. Sample specific estimated detection limit.								
b. Estimated maximum possible concentration.								
c. Method detection limit.								
d. Lower control limit - upper control limit.								
e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors.(WHIO)								

Analyst: JMH
 Approved By: William J. Luksemburg 22-May-2006 09:18

Sample ID: SL-7.2-06		EPA Method 8290					
Client Data		Sample Data		Laboratory Data			
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27669-002		
Project:	FT Bragg-Site Assessment 186609	Sample Size:	10.9 g	QC Batch No.:	8024		
Date Collected:	3-May-06	%Solids:	92.5	Date Analyzed DB-5:	18-May-06		
Time Collected:	0900			Dates Analyzed DB-225:	19-May-06		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	0.271	J		J	69.1	40 - 135	
1,2,3,7,8-PeCDD	0.243	J		J	57.3	40 - 135	
1,2,3,4,7,8-HxCDD	ND		0.176		70.3	40 - 135	
1,2,3,6,7,8-HxCDD	0.643			J	72.2	40 - 135	
1,2,3,7,8,9-HxCDD	0.415			J	66.6	40 - 135	
1,2,3,4,6,7,8-HpCDD	11.0				45.4	40 - 135	
OCDD	99.9				77.4	40 - 135	
2,3,7,8-TCDF	1.90				65.4	40 - 135	
1,2,3,7,8-PeCDF	0.583			J	62.9	40 - 135	
2,3,4,7,8-PeCDF	0.753			J	67.6	40 - 135	
1,2,3,4,7,8-HxCDF	0.268			J,B	59.7	40 - 135	
1,2,3,6,7,8-HxCDF	0.299			J,B	65.6	40 - 135	
2,3,4,6,7,8-HxCDF	0.263			J	70.7	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0612			58.6	40 - 135	
1,2,3,4,6,7,8-HpCDF	2.34			J,B	55.6	40 - 135	
1,2,3,4,7,8,9-HpCDF	0.187			J	43.1	40 - 135	
OCDF	5.94			B	70.1	40 - 135	
Totals					Toxic Equivalent Quotient (TEQ) Data^e		
Total TCDD	3.19				TEQ (Min):	1.44	
Total PeCDD	2.65				a. Sample specific estimated detection limit.		
Total HxCDD	5.31				b. Estimated maximum possible concentration.		
Total HpCDD	20.4				c. Method detection limit.		
Total TCDF	27.2				d. Lower control limit - upper control limit.		
Total PeCDF	8.22			B	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)		
Total HxCDF	4.19	J+		B			
Total HpCDF	5.94	J+		B			

Analyst: JMH

Approved By: William J. Luksemburg 22-May-2006 09:18

Sample ID: **SL-7.3-06**

EPA Method 8290

Client Data

Name: Curtis & Tompkins, Ltd.
 Project: Ft Bragg-Site Assessment 186609
 Date Collected: 3-May-06
 Time Collected: 0915

Sample Data

Matrix: Soil
 Sample Size: 11.3 g
 %Solids: 88.9

Laboratory Data

Lab Sample: 27669-003 Date Received: 6-May-06
 QC Batch No.: 8024 Date Extracted: 15-May-06
 Date Analyzed DB-5: 18-May-06 Dates Analyzed DB-225: 19-May-06

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	0.410	J		J	13C-2,3,7,8-TCDD	78.0	40 - 135	
1,2,3,7,8-PeCDD	0.719	J		J	13C-1,2,3,7,8-PeCDD	65.4	40 - 135	
1,2,3,4,7,8-HxCDD	0.648	J		J	13C-1,2,3,4,7,8-HxCDD	81.6	40 - 135	
1,2,3,6,7,8-HxCDD	1.54	J		J	13C-1,2,3,6,7,8-HxCDD	81.5	40 - 135	
1,2,3,7,8,9-HxCDD	1.19	J		J	13C-1,2,3,4,6,7,8-HpCDD	82.1	40 - 135	
1,2,3,4,6,7,8-HpCDD	25.8				13C-OCDD	60.0	40 - 135	
OCDD	250				13C-2,3,7,8-TCDF	87.7	40 - 135	
2,3,7,8-TCDF	2.99				13C-1,2,3,7,8-PeCDF	72.4	40 - 135	
1,2,3,7,8-PeCDF	1.12			J	13C-2,3,4,7,8-PeCDF	68.8	40 - 135	
2,3,4,7,8-PeCDF	1.66			J	13C-1,2,3,4,7,8-HxCDF	76.2	40 - 135	
1,2,3,4,7,8-HxCDF	0.670			J,B	13C-1,2,3,6,7,8-HxCDF	67.3	40 - 135	
1,2,3,6,7,8-HxCDF	0.736			J,B	13C-2,3,4,6,7,8-HxCDF	76.9	40 - 135	
2,3,4,6,7,8-HxCDF	ND		0.830		13C-1,2,3,7,8,9-HxCDF	79.1	40 - 135	
1,2,3,7,8,9-HxCDF	0.285			J	13C-1,2,3,4,6,7,8-HpCDF	71.0	40 - 135	
1,2,3,4,6,7,8-HpCDF	6.06			B	13C-1,2,3,4,7,8,9-HpCDF	62.9	40 - 135	
1,2,3,4,7,8,9-HpCDF	0.435			J	13C-OCDF	52.3	40 - 135	
OCDF	16.5			B	CRS 37Cl-2,3,7,8-TCDD	76.4	40 - 135	

Toxic Equivalent Quotient (TEQ) Data^e

TEQ (Min):	3.17
a. Sample specific estimated detection limit. b. Estimated maximum possible concentration. c. Method detection limit. d. Lower control limit - upper control limit. e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	
Total TCDD	9.66
Total PeCDD	9.48
Total HxCDD	16.1
Total HpCDD	50.2
Total TCDF	48.0
Total PeCDF	18.8
Total HxCDF	11.3
Total HpCDF	14.4

Analyst: JMH

Approved By: William J. Luksemburg 22-May-2006 09:18

Sample ID: AS-7.1-GRASS

EPA Method 8290

Client Data		Sample Data		Laboratory Data	
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27669-004
Project:	Ft Bragg-Site Assessment 186609	Sample Size:	22.9 g	QC Batch No.:	8024
Date Collected:	3-May-06	%Solids:	24.7	Date Analyzed DB-5:	18-May-06
Time Collected:	0830			Date Analyzed DB-225:	NA

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0528			13C-2,3,7,8-TCDD	74.5	40 - 135	
1,2,3,7,8-PeCDD	ND	0.0753	0.135		13C-1,2,3,7,8-PeCDD	60.9	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.0803			13C-1,2,3,4,7,8-HxCDD	79.8	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.0786			13C-1,2,3,6,7,8-HxCDD	78.7	40 - 135	
1,2,3,7,8,9-HxCDD	ND				13C-1,2,3,4,6,7,8-HpCDD	76.4	40 - 135	
1,2,3,4,6,7,8-HpCDD	0.851			J	13C-OCDD	56.1	40 - 135	
OCDD	4.72			J	13C-2,3,7,8-TCDF	83.0	40 - 135	
2,3,7,8-TCDF	0.406			J	13C-1,2,3,7,8-PeCDF	68.5	40 - 135	
1,2,3,7,8-PeCDF	0.187			J	13C-2,3,4,7,8-PeCDF	65.2	40 - 135	
2,3,4,7,8-PeCDF	ND	0.0685			13C-1,2,3,4,7,8-HxCDF	75.5	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0517			13C-1,2,3,6,7,8-HxCDF	67.1	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0516			13C-2,3,4,6,7,8-HxCDF	73.1	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0578			13C-1,2,3,7,8,9-HxCDF	76.4	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0790			13C-1,2,3,4,6,7,8-HpCDF	65.4	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.444			J,B	13C-1,2,3,4,7,8,9-HpCDF	60.5	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.114			13C-OCDF	49.8	40 - 135	
OCDF	1.00			J,B	CRS 37Cl-2,3,7,8-TCDD	74.9	40 - 135	

Totals		Toxic Equivalent Quotient (TEQ) Data ^e	
Total TCDD	1.06	TEQ (Min):	0.0635
Total PeCDD	1.99	a. Sample specific estimated detection limit.	
Total HxCDD	1.94	b. Estimated maximum possible concentration.	
Total HpCDD	2.24	c. Method detection limit.	
Total TCDF	7.02	d. Lower control limit - upper control limit.	
Total PeCDF	2.01	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)	
Total HxCDF	0.490		
Total HpCDF	0.654		

Analyst: JMH

Approved By: William J. Luksemburg 22-May-2006 09:18

Sample ID: AS-7.2-GRASS		EPA Method 8290			
Client Data		Sample Data		Laboratory Data	
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27669-005
Project:	Ft Bragg-Site Assessment 186609	Sample Size:	31.0 g	QC Batch No.:	8024
Date Collected:	3-May-06	%Solids:	23.2	Date Analyzed DB-5:	18-May-06
Time Collected:	0820			Date Analyzed DB-225:	NA
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	%R LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND		0.166		72.2 40 - 135
1,2,3,7,8-PeCDD	0.238			J	61.3 40 - 135
1,2,3,4,7,8-HxCDD	0.109		0.168	J	78.2 40 - 135
1,2,3,6,7,8-HxCDD	ND				80.5 40 - 135
1,2,3,7,8,9-HxCDD	0.137			J	78.3 40 - 135
1,2,3,4,6,7,8-HpCDD	1.07			J	59.0 40 - 135
OCDD	4.29			J	81.3 40 - 135
2,3,7,8-TCDF	0.657			J	67.8 40 - 135
1,2,3,7,8-PeCDF	0.310			J	65.5 40 - 135
2,3,4,7,8-PeCDF	0.459			J	73.1 40 - 135
1,2,3,4,7,8-HxCDF	0.175			J,B	65.2 40 - 135
1,2,3,6,7,8-HxCDF	0.184			J,B	72.9 40 - 135
2,3,4,6,7,8-HxCDF	0.214			J	80.4 40 - 135
1,2,3,7,8,9-HxCDF	ND	0.0672			70.4 40 - 135
1,2,3,4,6,7,8-HpCDF	0.338			J,B	73.4 40 - 135
1,2,3,4,7,8,9-HpCDF	ND	0.0733			55.5 40 - 135
OCDF	ND		0.581		72.5 40 - 135
Totals					CRS 37Cl-2,3,7,8-TCDD
Total TCDD	2.42				Toxic Equivalent Quotient (TEQ) Data^c
Total PeCDD	2.68				TEQ (Min): 0.646
Total HxCDD	2.75				a. Sample specific estimated detection limit.
Total HpCDD	2.40				b. Estimated maximum possible concentration.
Total TCDF	13.2				c. Method detection limit.
Total PeCDF	4.70				d. Lower control limit - upper control limit.
Total HxCDF	1.71	J+			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (W110)
Total HpCDF	0.530	J+			

Analyst: JMH

Approved By: William J. Luksemburg 22-May-2006 09:18

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment

Reviewed By: E. Seebay

Sample Collection Dates: 5/3/06

Approved By: wgk

Client: Acton Mickelson Environmental, Inc.

Completion Date: 7/7/06

Project Manager: Jeff Heglie

Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 27669

*Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail	Problems Identified	Support Documentation Attachments
	Check if Yes or Footnote Letter for Comments Below	Check if Yes or Footnote Number for Comments Below	Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	(1)	✓
Laboratory Method Blank Results	✓	(2)	✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓	(3)	✓
Verification of the EDD in XLS Format	✓		✓

Comments: (1) Samples received 0.5% samples AS-7.1-GRASS and AS-7.2-GRASS received in clear jars.

(2) Positive results less than the lowest calibration standard were reported in the method blank

(3) Positive result less than the lowest calibration standard were reported in samples

Curtis & Tompkins SDG: 186609

Method Blank		EPA Method 8290					
Matrix:	Soil	QC Batch No.:	8024	Lab Sample:	0-MB001		
Sample Size:	10.0 g	Date Extracted:	15-May-06	Date Analyzed DB-5:	17-May-06		
				Date Analyzed DB-225:	NA		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0269		IS 13C-2,3,7,8-TCDD	76.0	40 - 135	
1,2,3,7,8-PeCDD	ND	0.0385		13C-1,2,3,7,8-PeCDD	63.9	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.0387		13C-1,2,3,4,7,8-HxCDD	78.3	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.0422		13C-1,2,3,6,7,8-HxCDD	75.7	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.0408		13C-1,2,3,4,6,7,8-HpCDD	74.8	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.0331		13C-OCDD	53.4	40 - 135	
OCDD	ND		0.208	13C-2,3,7,8-TCDF	83.1	40 - 135	
2,3,7,8-TCDF	ND	0.0378		13C-1,2,3,7,8-PeCDF	70.0	40 - 135	
1,2,3,7,8-PeCDF	ND	0.0388		13C-2,3,4,7,8-PeCDF	68.4	40 - 135	
2,3,4,7,8-PeCDF	ND	0.0366		13C-1,2,3,4,7,8-HxCDF	71.5	40 - 135	
1,2,3,4,7,8-HxCDF	0.124			13C-1,2,3,6,7,8-HxCDF	64.3	40 - 135	J
1,2,3,6,7,8-HxCDF	0.0834			13C-2,3,4,6,7,8-HxCDF	72.4	40 - 135	J
2,3,4,6,7,8-HxCDF	ND	0.0305		13C-1,2,3,7,8,9-HxCDF	74.1	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0436		13C-1,2,3,4,6,7,8-HpCDF	66.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.545			13C-1,2,3,4,7,8,9-HpCDF	60.6	40 - 135	J
1,2,3,4,7,8,9-HpCDF	ND	0.0707		13C-OCDF	48.1	40 - 135	
OCDF	0.508			CRS 37Cl-2,3,7,8-TCDD	75.5	40 - 135	J
Totals							
Total TCDD	ND	0.0269		Toxic Equivalent Quotient (TEQ) Data			
Total PeCDD	ND	0.0385		TEQ (Min): 0.0262			
Total HxCDD	ND	0.0406		a. Sample specific estimated detection limit.			
Total HpCDD	ND	0.0331		b. Estimated maximum possible concentration.			
Total TCDF	ND	0.0378		c. Method detection limit.			
Total PeCDF	0.186			d. Lower control limit - upper control limit.			
Total HxCDF	0.588			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HpCDF	0.545						

Analyst: JMH

Approved By:

William J. Luksemburg 22-May-2006 09:18

EPA Method 8290

OPR Results		Lab Sample: 0-OPR001		Date Analyzed DB-5: 17-May-06		Date Analyzed DB-225: NA	
Matrix:	Soil <th>QC Batch No.:</th> <td>8024 <th>Lab Sample:</th> <td>0-OPR001 <th>Date Analyzed DB-5:</th> <td>17-May-06 </td></td></td>	QC Batch No.:	8024 <th>Lab Sample:</th> <td>0-OPR001 <th>Date Analyzed DB-5:</th> <td>17-May-06 </td></td>	Lab Sample:	0-OPR001 <th>Date Analyzed DB-5:</th> <td>17-May-06 </td>	Date Analyzed DB-5:	17-May-06
Sample Size:	10.0 g <th>Date Extracted:</th> <td>15-May-06 <th>Date Analyzed DB-225:</th> <td>NA <th>Lab Sample:</th> <td>0-OPR001 </td></td></td>	Date Extracted:	15-May-06 <th>Date Analyzed DB-225:</th> <td>NA <th>Lab Sample:</th> <td>0-OPR001 </td></td>	Date Analyzed DB-225:	NA <th>Lab Sample:</th> <td>0-OPR001 </td>	Lab Sample:	0-OPR001
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL	
2,3,7,8-TCDD	10.0	9.94	7 - 13	IS 13C-2,3,7,8-TCDD	77.7	40 - 135	
1,2,3,7,8-PeCDD	50.0	49.2	35 - 65	13C-1,2,3,7,8-PeCDD	69.4	40 - 135	
1,2,3,4,7,8-HxCDD	50.0	50.1	35 - 65	13C-1,2,3,4,7,8-HxCDD	79.6	40 - 135	
1,2,3,6,7,8-HxCDD	50.0	51.8	35 - 65	13C-1,2,3,6,7,8-HxCDD	80.2	40 - 135	
1,2,3,7,8,9-HxCDD	50.0	50.0	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	75.8	40 - 135	
1,2,3,4,6,7,8-HpCDD	50.0	51.5	35 - 65	13C-OCDD	52.3	40 - 135	
OCDD	100	100	70 - 130	13C-2,3,7,8-TCDF	86.1	40 - 135	
2,3,7,8-TCDF	10.0	10.3	7 - 13	13C-1,2,3,7,8-PeCDF	74.9	40 - 135	
1,2,3,7,8-PeCDF	50.0	49.8	35 - 65	13C-2,3,4,7,8-PeCDF	74.4	40 - 135	
2,3,4,7,8-PeCDF	50.0	49.4	35 - 65	13C-1,2,3,4,7,8-HxCDF	73.0	40 - 135	
1,2,3,4,7,8-HxCDF	50.0	48.8	35 - 65	13C-1,2,3,6,7,8-HxCDF	65.0	40 - 135	
1,2,3,6,7,8-HxCDF	50.0	48.3	35 - 65	13C-2,3,4,6,7,8-HxCDF	73.3	40 - 135	
2,3,4,6,7,8-HxCDF	50.0	49.6	35 - 65	13C-1,2,3,7,8,9-HxCDF	72.9	40 - 135	
1,2,3,7,8,9-HxCDF	50.0	49.5	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	66.7	40 - 135	
1,2,3,4,6,7,8-HpCDF	50.0	50.4	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	57.3	40 - 135	
1,2,3,4,7,8,9-HpCDF	50.0	50.3	35 - 65	13C-OCDF	34.4	40 - 135	
OCDF	100	96.4	70 - 130	CRS 37Cl-2,3,7,8-TCDD	76.7	40 - 135	

Analyst: JMH

Approved By: William J. Luksemburg 22-May-2006 08:49

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD



July 03, 2006

Alta Project I.D.: 27669

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the amended results for the three soil and two grass samples received at Alta Analytical Laboratory on May 06, 2006 under your Project Name "Ft Bragg-Site Assessment 186609". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

Three sample IDs were corrected as directed in your email of July 3, 2006.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

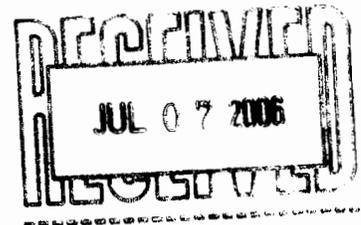
Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



This report, all tables, and contents show the report information as all the information on which the ALTA Laboratory's appropriate test methods. This report should not be used for any other purpose without the written approval of ALTA.



Alta Analytical Laboratory Inc.

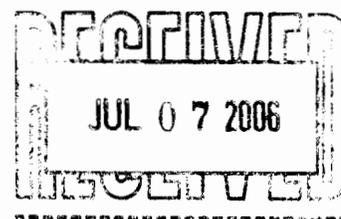
1104 Windfield Way
El Dorado Hills, CA 95762

FAX (916) 673-0106
(916) 933-1640

Section I: Sample Inventory Report

Date Received: 5/6/2006

<u>Alta Lab. ID</u>	<u>Client Sample ID</u>
27669-001	SL-7.1-0.6
27669-002	SL-7.2-0.6
27669-003	SL-7.3-0.6
27669-004	AS-7.1-GRASS
27669-005	AS-7.2-GRASS



Curtis & Tompkins, Ltd.
 Analytical Laboratories, Since 1878
 2323 Fifth Street
 Berkeley, CA 94710
 (510) 486-0900
 (510) 486-0532

27669 0.5%

Project Number: 186609
 Site: Ft Bragg-Site Assessment

Saturday Delivery

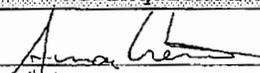
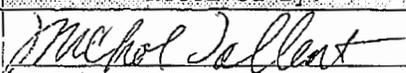
Subcontract Laboratory:
 Alta Analytical Lab, Inc.
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 933-1640
 ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker

*** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
SL-7.1-0.6	05/03 08:45	Soil	8290	186609-003	Dioxins & Furans
SL-7.2-0.6	05/03 09:00	Soil	8290	186609-004	Dioxins & Furans
SL-7.3-0.6	05/03 09:15	Soil	8290	186609-005	Dioxins & Furans
AS-7.1-GRASS	05/03 08:30	Soil	8290	186609-006	Rinse w/ DI
	water before prepping for analysis				
AS-7.2-GRASS	05/03 08:20	Soil	8290	186609-007	Rinse w/ DI
	water before prepping for analysis				

Notes:	Relinquished By:	Received By:
		
	Date/Time: 5/5/06 1314	Date/Time: 5/6/06 1115

Signature on this form constitutes a firm Purchase Order for the services requested above.

SAMPLE LOG-IN CHECKLIST

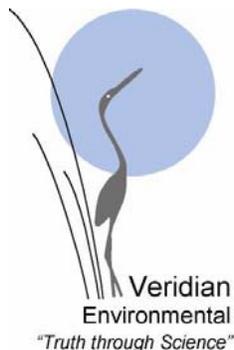
Alta Project #: 27669

Samples Arrival:	Date/Time 5/6/06 1115	Initials: MOT	Location: WR-2
			Shelf/Rack: _____
Logged In:	Date/Time 5/8/06 0933	Initials: BSB	Location: WR-2
			Shelf/Rack: D-3
Delivered By:	FedEx	UPS	Cal
			DHL
			Hand Delivered
			Other
Preservation:	Ice	Blue Ice	Dry Ice
			None
Temp °C	0.5°	Time: 1120	Thermometer ID: DT-20

		YES	NO	NA
Adequate Sample Volume Received?		✓		
Holding Time Acceptable?		✓		
Shipping Container(s) Intact?		✓		
Shipping Custody Seals Intact?				✓
Shipping Documentation Present?		✓		
Airbill	Trk # C10129000026660	✓		
Sample Container Intact?		✓		
Sample Custody Seals Intact?				✓
Chain of Custody / Sample Documentation Present?		✓		
COC Anomaly/Sample Acceptance Form completed?			✓	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?				✓
Na ₂ S ₂ O ₃ Preservation Documented?	COC	Sample Container	None	
Shipping Container	Alta	Client	Retain	Return
				Dispose

Comments:

Samples: AS-7.1- Grass received in clear glass jar
AS-7.2-Grass ↓ ↓ ↓ ↓ ↓



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT

***Georgia-Pacific
California Wood Products
Manufacturing Facility***

Laboratory Project IDs

- *Alta Analytical Laboratory, Inc.
#27711*
- *Curtis & Tompkins, Ltd.
#186842*

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on one soil sample collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the sample was analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	AS-7.4-5	27711-001	27711	05/16/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data

that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project sample. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The sample was analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times	✓			
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results		✓		
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			
Identification and Quantitation of Target Compounds			✓	
Verification of the EDD in XLS Format	✓			

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original field chain-of-custody records documenting the shipment of the samples to Curtis & Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.2°C) of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of 4 ± 2°C. These exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analytes were reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Qualification of the data was not warranted on this basis. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Analyte</u>	<u>Concentration</u>
Total HxCDF	0.102 pg/g
1,2,3,4,6,7,8-HpCDF	0.176 pg/g
Total HpCDF	0.176 pg/g

Identification and Quantitation of Target Compounds

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J” on the qualified analytical result forms.

According to the laboratory, the concentrations of the following analytes in the samples listed below have been reported as maximum possible concentration(s) due to possible interferences from chlorinated diphenylethers.

<u>Sample</u>	<u>Analyte</u>
AS-7.4-5	Total PeCDF and Total HxCDF

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) – U.S. EPA Method 8290

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J”.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.

DV Qualifier	Definition
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified a minor aspect of the analytical data that required qualification due to results below the calibration range of the instrument. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran

Acronym

U.S. EPA

Definition

United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:



Ellen E. Seeley
Quality Assurance Chemist

Report Reviewed and Approved By:



William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: AS-7.4-5

EPA Method 8290

<u>Client Data</u>		<u>Sample Data</u>		<u>Laboratory Data</u>			
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27711-001		
Project:	Ft Bragg-Site Assessment 186842	Sample Size:	18.5 g	QC Batch No.:	8036		
Date Collected:	16-May-06	%Solids:	53.8	Date Analyzed DB-5:	22-May-06		
Time Collected:	1336			Dates Analyzed DB-225:	23-May-06		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	19.3			13C-2,3,7,8-TCDD	87.4	40 - 135	
1,2,3,7,8-PeCDD	16.1			13C-1,2,3,7,8-PeCDD	78.7	40 - 135	
1,2,3,4,7,8-HxCDD	7.09			13C-1,2,3,4,7,8-HxCDD	85.4	40 - 135	
1,2,3,6,7,8-HxCDD	9.36			13C-1,2,3,6,7,8-HxCDD	94.0	40 - 135	
1,2,3,7,8,9-HxCDD	8.11			13C-1,2,3,4,6,7,8-HpCDD	81.7	40 - 135	
1,2,3,4,6,7,8-HpCDD	28.9			13C-OCDD	51.7	40 - 135	
OCDD	32.7			13C-2,3,7,8-TCDF	97.6	40 - 135	
2,3,7,8-TCDF	180			13C-1,2,3,7,8-PeCDF	85.3	40 - 135	
1,2,3,7,8-PeCDF	60.7			13C-2,3,4,7,8-PeCDF	81.4	40 - 135	
2,3,4,7,8-PeCDF	72.4			13C-1,2,3,4,7,8-HxCDF	81.6	40 - 135	
1,2,3,4,7,8-HxCDF	18.8			13C-1,2,3,6,7,8-HxCDF	80.9	40 - 135	
1,2,3,6,7,8-HxCDF	21.2			13C-2,3,4,6,7,8-HxCDF	83.9	40 - 135	
2,3,4,6,7,8-HxCDF	20.7			13C-1,2,3,7,8,9-HxCDF	84.0	40 - 135	
1,2,3,7,8,9-HxCDF	8.17			13C-1,2,3,4,6,7,8-HpCDF	78.9	40 - 135	
1,2,3,4,6,7,8-HpCDF	15.8		B	13C-1,2,3,4,7,8,9-HpCDF	73.6	40 - 135	
1,2,3,4,7,8,9-HpCDF	5.19			13C-OCDF	55.5	40 - 135	
OCDF	4.99	J	J	CRS 37Cl-2,3,7,8-TCDD	84.9	40 - 135	
Totals							
Total TCDD	389			TEQ (Min):	102		
Total PeCDD	240			a. Sample specific estimated detection limit.			
Total HxCDD	166			b. Estimated maximum possible concentration.			
Total HpCDD	51.2			c. Method detection limit.			
Total TCDF	2370			d. Lower control limit - upper control limit.			
Total PeCDF	744		D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HxCDF	198		B,D				
Total HpCDF	33.9		B				

Analyst: JMH

Approved By: William J. Luksemburg 23-May-2006 14:57

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment Reviewed By: E. Deeley
 Sample Collection Dates: 5/16/06 Approved By: UGK
 Client: Acton Mickelson Environmental, Inc. Completion Date: 7/11/06
 Project Manager: Jeff Heglie
 Laboratory: Alta Analytical Laboratory, Inc. subcontracted by Curtis & Tompkins, Ltd.

Deliverables: Level II

SDG: 27711
 *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

	Criteria Examined in Detail Check if Yes or Footnote Letter for Comments Below	Problems Identified Check if Yes or Footnote Number for Comments Below	Support Documentation Attachments Check if Yes or Identify Attachment No.
	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	✓		✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	(1)	✓
Laboratory Method Blank Results	✓	(2)	✓
Ongoing Precision and Recovery Sample Results	✓		✓
Internal Standard Recoveries	✓		✓
Cleanup Standard Recoveries	✓		✓
Identification and Quantitation of Target Compounds	✓	(3)	✓
Verification of the EDD in XLS Format	✓		✓

Comments:

(1) Temperature upon receipt at subcontract laboratory was below acceptable range of 4±2°C.
 (2) Concentrations of HxCDF and HpCDF present in sample (see Blank Analysis Results Form).
 (3) Sample concentration was below calibration range of the instrument. Also, diphenylether interference was observed in the sample.

Curtis & Tompkins SDG: 186842

Method Blank				EPA Method 8290				
Matrix:	Soil	QC Batch No.:	8036	Lab Sample:	0-MB001	Date Analyzed DB-5:	22-May-06	
Sample Size:	10.0 g	Date Extracted:	19-May-06	Date Analyzed DB-225:	NA			
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0537			IS 13C-2,3,7,8-TCDD	85.0	40 - 135	
1,2,3,7,8-PeCDD	ND	0.0558			13C-1,2,3,7,8-PeCDD	77.4	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.0665			13C-1,2,3,4,7,8-HxCDD	79.9	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.0691			13C-1,2,3,6,7,8-HxCDD	88.3	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.0684			13C-1,2,3,4,6,7,8-HpCDD	80.0	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.0953			13C-OCDD	50.5	40 - 135	
OCDD	ND	0.139			13C-2,3,7,8-TCDF	96.0	40 - 135	
2,3,7,8-TCDF	ND	0.0546			13C-1,2,3,7,8-PeCDF	83.3	40 - 135	
1,2,3,7,8-PeCDF	ND	0.0422			13C-2,3,4,7,8-PeCDF	81.9	40 - 135	
2,3,4,7,8-PeCDF	ND	0.0395			13C-1,2,3,4,7,8-HxCDF	76.1	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0620			13C-1,2,3,6,7,8-HxCDF	78.0	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0543			13C-2,3,4,6,7,8-HxCDF	80.8	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0635			13C-1,2,3,7,8,9-HxCDF	79.0	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0975			13C-1,2,3,4,6,7,8-HpCDF	74.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	0.176			J	13C-1,2,3,4,7,8,9-HpCDF	72.4	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.0821			13C-OCDF	55.5	40 - 135	
OCDF	ND	0.230			CRS 37Cl-2,3,7,8-TCDD	83.9	40 - 135	
Totals				Toxic Equivalent Quotient (TEQ) Data ^e				
Total TCDD	ND	0.0537			TEQ (Min):	0.00176		
Total PeCDD	ND	0.0558			a. Sample specific estimated detection limit.			
Total HxCDD	ND	0.0680			b. Estimated maximum possible concentration.			
Total HpCDD	ND	0.0953			c. Method detection limit.			
Total TCDF	ND	0.0546			d. Lower control limit - upper control limit.			
Total PeCDF	ND	0.0408			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HxCDF	0.102							
Total HpCDF	0.176							

Analyst: JMH

Approved By:

William J. Luksemburg 23-May-2006 14:57

OPR Results		EPA Method 8290				
Matrix:	Soil	QC Batch No.:	8036	Lab Sample:	0-OPR001	
Sample Size:	10.0 g	Date Extracted:	19-May-06	Date Analyzed DB-5:	22-May-06	
				Date Analyzed DB-225:	NA	
Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	9.21	7 - 13	IS 13C-2,3,7,8-TCDD	87.6	40 - 135
1,2,3,7,8-PeCDD	50.0	47.3	35 - 65	13C-1,2,3,7,8-PeCDD	81.5	40 - 135
1,2,3,4,7,8-HxCDD	50.0	48.2	35 - 65	13C-1,2,3,4,7,8-HxCDD	83.8	40 - 135
1,2,3,6,7,8-HxCDD	50.0	47.3	35 - 65	13C-1,2,3,6,7,8-HxCDD	93.1	40 - 135
1,2,3,7,8,9-HxCDD	50.0	47.7	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	77.0	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	48.5	35 - 65	13C-OCDD	51.7	40 - 135
OCDD	100	92.8	70 - 130	13C-2,3,7,8-TCDF	98.9	40 - 135
2,3,7,8-TCDF	10.0	8.98	7 - 13	13C-1,2,3,7,8-PeCDF	87.6	40 - 135
1,2,3,7,8-PeCDF	50.0	47.0	35 - 65	13C-2,3,4,7,8-PeCDF	86.8	40 - 135
2,3,4,7,8-PeCDF	50.0	45.2	35 - 65	13C-1,2,3,4,7,8-HxCDF	79.8	40 - 135
1,2,3,4,7,8-HxCDF	50.0	46.3	35 - 65	13C-1,2,3,6,7,8-HxCDF	77.1	40 - 135
1,2,3,6,7,8-HxCDF	50.0	49.2	35 - 65	13C-2,3,4,6,7,8-HxCDF	84.4	40 - 135
2,3,4,6,7,8-HxCDF	50.0	46.9	35 - 65	13C-1,2,3,7,8,9-HxCDF	83.7	40 - 135
1,2,3,7,8,9-HxCDF	50.0	48.4	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	76.3	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	48.4	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	74.2	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	47.9	35 - 65	13C-OCDF	56.7	40 - 135
OCDF	100	93.7	70 - 130	CRS 37Cl-2,3,7,8-TCDD	86.2	40 - 135

Analyst: JMH

Approved By:

William J. Luksemburg 23-May-2006 14:57

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

May 23, 2006

Alta Project I.D.: 27711

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the one soil sample received at Alta Analytical Laboratory on May 17, 2006 under your Project Name "Ft Bragg-Site Assessment 186842". This sample was extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A rush turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. This report should not be reproduced except in full without the written approval of ALTA.



Section I: Sample Inventory Report

Date Received: 5/17/2006

Alta Lab. ID

Client Sample ID

27711-001

AS-7.4-5

Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878
2323 Fifth Street
Berkeley, CA 94710
(510) 486-0900
(510) 486-0532

27711
0.2°C

Project Number: 186842
Site: Ft Bragg-Site Assessment

Subcontract Laboratory:
Alta Analytical Lab, Inc.
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 933-1640
ATTN: Maricel Avelino

Results due: Report Level: II

Please send report to: Lisa Brooker

*** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
AS-7.4-5	05/16 13:36	Soil	8290	186842-001	

Notes:	Relinquished By:	Received By:
	<i>[Signature]</i>	<i>Bettina G. Benedict</i>
	Date/Time:	Date/Time:
	5/16/06 18:00	5/17/06 0900

Signature on this form constitutes a firm Purchase Order for the services requested above.

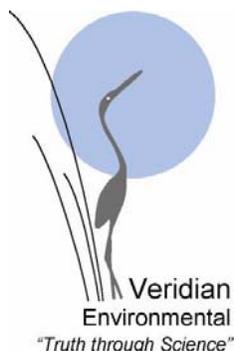
SAMPLE LOG-IN CHECKLIST

Alta Project #: 27711

Samples Arrival:	Date/Time <u>5/17/06 0900</u>	Initials: <u>UBB</u>	Location: <u>WK-2</u>
Logged In:	Date/Time <u>5/17/06 1247</u>	Initials: <u>UBB</u>	Location: <u>WR-2</u> Shelf/Rack: <u>F-4</u>
Delivered By:	FedEx <input type="checkbox"/> UPS <input type="checkbox"/> <u>Cal</u> <input checked="" type="checkbox"/> DHL <input type="checkbox"/> Hand Delivered <input type="checkbox"/> Other <input type="checkbox"/>		
Preservation:	<u>Ice</u> <input checked="" type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> None <input type="checkbox"/>		
Temp °C	<u>0.2°C</u>	Time: <u>0910</u>	Thermometer ID: DT-20

		YES	NO	NA
Adequate Sample Volume Received?		✓		
Holding Time Acceptable?		✓		
Shipping Container(s) Intact?		✓		
Shipping Custody Seals Intact?				✓
Shipping Documentation Present?		✓		
Airbill	Trk # <u>C10129000027121</u>	✓		
Sample Container Intact?		✓		
Sample Custody Seals Intact?				✓
Chain of Custody / Sample Documentation Present?		✓		
COC Anomaly/Sample Acceptance Form completed?			✓	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?				✓
Na ₂ S ₂ O ₃ Preservation Documented?	COC		Sample Container	<u>None</u>
Shipping Container	Alta <u>Client</u>	Retain	<u>Return</u>	Dispose

Comments:



July 11, 2006

Prepared for:

Mr. Jeff Heglie
Acton Mickelson Environmental, Inc.
5175 Hillsdale Circle, Suite 100
El Dorado Hills, California 95762

DATA VALIDATION REPORT

***Georgia-Pacific
California Wood Products
Manufacturing Facility***

Laboratory Project IDs

- *Alta Analytical Laboratory, Inc.
#27743*
- *Curtis & Tompkins, Ltd.
#187069*

1.0 Introduction

This report summarizes the findings of the Level II data validation that was performed on six soil samples collected as part of the Foundation Removal, Additional Investigation, and Interim Remedial Measures Project at the Georgia-Pacific Wood products Manufacturing Facility, 90 West Redwood Avenue, Fort Bragg, California. As summarized below, the samples were analyzed by Alta Analytical Laboratory, Inc. (AAL) facilities at El Dorado Hills, California. Data were validated in accordance with the Work Plan for Additional Site Assessment (Acton Mickelson, 2005) and guidance from U.S. EPA Region 9 Data Quality Indicator Tables for Tetra- through Octa-chlorinated Dioxins and Furans by Isotope Dilution High Resolution Gas Chromatography (HRGC)/High Resolution Mass Spectrometry (HRMS) (1999) and U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (2002).

Matrix	Client Sample ID	AAL Sample ID	Laboratory Project ID	Collection Date	Parameters Analyzed
Soil	DP-7.13-15	27743-001	27743	04/06/06	D
Soil	DP-4.7-20	27743-002	27743	04/17/06	D
Soil	DP-4.7-1	27743-003	27743	04/17/06	D
Soil	DP-4.12-18	27743-004	27743	04/18/06	D
Soil	DP-4.10-16	27743-005	27743	04/18/06	D
Soil	DP-4.15-10	27743-006	27743	04/20/06	D

Note:

D - Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS) by U.S. EPA Method 8290.

The data were examined to determine the usability of the analytical results and the compliance relative to requirements specified in the analytical methods. Qualifier codes have been placed next to the results on the laboratory analytical result forms so the data user can quickly assess the qualitative and/or quantitative reliability of any result. The data qualifications allow the data end-user to best understand the usability of the analytical results. It should be understood that data that have not been qualified in this report should be considered valid based on the quality control (QC) criteria that have been reviewed. This report was prepared to provide a critical review of the laboratory analyses and the reported analytical results. Quality assurance (QA) reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories. The qualified laboratory analytical result forms are presented as Attachment A. Copies of all relevant documentation needed to support the findings of the quality assurance review are presented as Attachment B. The Cover Letter and Chain-of-Custody Record are presented as Attachment C and Project Correspondence is presented as Attachment D. The findings of this QA review are presented in Section 2.0 of this report.

2.0 Findings

Copies of all relevant documentation needed to support the findings of the quality assurance review are presented in Attachment B of this report. Data usability issues represent an interpretation of the QC results obtained for the project samples. Quite often, data qualifications address issues relating to sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance. Data that warranted qualification are summarized in Section 3.0 of this report.

A. Chlorinated Dioxins and Furans

The samples were analyzed by U.S. EPA Method 8290 for Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs). The following data requirements were evaluated. Details of the data findings are presented following the summary of the data requirements.

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Analytical Holding Times			✓	
Sample Condition Upon Receipt at Subcontract Laboratory		✓		
Laboratory Method Blank Results		✓		
Ongoing Precision and Recovery Sample Results	✓			
Internal Standard Recoveries	✓			
Cleanup Standard Recoveries	✓			

	Acceptable	Acceptable With Discussion	Acceptable With Qualification	Not Acceptable
Identification and Quantitation of Target Compounds			✓	
Verification of the EDD in XLS Format	✓			

Analytical Holding Times

The holding times from sampling to extraction (30 days) and from sampling to analysis (45 days) exceeded the method-specified holding time for the samples listed below. Consequently, the data has been qualified as estimated (J/UJ) on the qualified analytical result forms. Although qualified, in accordance with protocols, the impact to data quality may be negligible.

<u>Sample</u>	<u>Date Collected</u>	<u>Date Extracted</u>	<u>Date Analyzed</u>	<u>Days to Extraction</u>	<u>Days to Analysis</u>
DP-7.13-15	04/06/06	06/01/06	06/03/06	54	56
DP-4.7-20	04/17/06	06/01/06	06/03/06	45	47
DP-4.7-1	04/17/06	06/01/06	06/03/06	45	47
DP-4.12-18	04/18/06	06/01/06	06/03/06	44	46
DP-4.10-16	04/18/06	06/01/06	06/03/06	44	46
DP-4.15-10	04/20/06	06/01/06	06/03/06	42	44

Sample Condition Upon Receipt at Subcontract Laboratory

Since the original chain-of-custody records documenting the shipment of the samples to Curtis and Tompkins, Ltd. were not provided as part of the data package, the review of sample condition upon receipt was limited to the documentation provided. The temperature (0.5°C) of the samples upon receipt at the subcontract lab, Alta Analytical Laboratory, Inc., was below the acceptable range of $4 \pm 2^\circ\text{C}$. In addition, the samples were received in clear plastic core tubes as opposed to amber jars as required by the method. Also, sample DP-4.7-1 was received with less than ideal sample volume, as well. These exceptions do not warrant qualification of the data.

Laboratory Method Blank Results

The following analyte was reported at trace levels in the associated laboratory method blank. The data were reviewed with guidance from U.S. EPA protocols. Qualification of the data was not warranted on this basis. It should be noted that dilution factors and sample volume were taken into consideration when evaluating blank contamination.

<u>Compound</u>	<u>Concentration</u>
1,2,3,4,6,7,8-HpCDF	0.172 pg/g

Identification and Quantitation of Target Compounds

According to the laboratory, the concentration of the compound PeCDF in sample DP-4.7-20 has been reported as the maximum possible concentration due to possible interferences from chlorinated diphenylethers.

All results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J”.

3.0 Qualifier Summary Tables

Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) –
U.S. EPA Method 8290

Sample ID(s)	SDG	Compound(s)	DV Qualifier	Reason(s)
DP-7.13-15	27743	All analytes	J/UJ	Extracted and analyzed outside of holding time
DP-4.7-20	27743	All analytes	J/UJ	Extracted and analyzed outside of holding time
DP-4.7-1	27743	All analytes	J/UJ	Extracted and analyzed outside of holding time
DP-4.12-18	27743	All analytes	J/UJ	Extracted and analyzed outside of holding time
DP-4.10-16	27743	All analytes	J/UJ	Extracted and analyzed outside of holding time
DP-4.15-10	27743	All analytes	J/UJ	Extracted outside of holding time

In addition, all results reported at concentrations less than the lowest calibration level (adjusted for dilution factors and sample sizes) should be considered estimated and have been flagged “J”.

Data Qualifier Definitions

DV Qualifier	Definition
U	The material was analyzed for, but should be considered not detected above the level of the associated value due to contamination or interference identified.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The analyte was positively identified. The associated numerical value has a low bias and is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified. The associated numerical value has a high bias and is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

DV Qualifier	Definition
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.

4.0 Overall Assessment

This QA review has identified minor aspects of the analytical data that required qualification due to excessive holding times, results below the calibration range of the instrument, and possible interferences. To confidently use any of the analytical data within these sample sets, the data user should understand the qualifications and limitations of the results.

5.0 Acronyms

<u>Acronym</u>	<u>Definition</u>
%D	Percent Difference
%R	Percent Recovery
CRS	Cleanup Recovery Standard
DV	Data Validation
HpCDD	Heptachlorodibenzodioxin
HpCDF	Heptachlorodibenzofuran
HRGC	High Resolution Gas Chromatography
HRMS	High Resolution Mass Spectrometry
HxCDD	Hexachlorodibenzodioxin
HxCDF	Hexachlorodibenzofuran
IS	Internal Standard
OCDD	Octachlorodibenzodioxin
OCDF	Octachlorodibenzofuran
OPR	Ongoing Precision and Recovery
PCDDs	Polychlorinated Dibenzodioxins
PCDFs	Polychlorinated Dibenzofurans
PeCDD	Pentachlorodibenzodioxin
PeCDF	Pentachlorodibenzofuran
TCDD	Tetrachlorodibenzodioxin
TCDF	Tetrachlorodibenzofuran
U.S. EPA	United States Environmental Protection Agency

6.0 References

SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Third Edition, U.S. Environmental Protection Agency, Office of Solid Waste, December 1994.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS).

U.S. EPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, EPA 540-R-02-003, August 2002.

U.S. EPA Region 9 Data Quality Indicator Tables, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.

Method 8290: Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High-Resolution Mass Spectrometry (HRGC/HRMS), December 1999.

Work Plan for Additional Site Assessment, Acton Mickelson, June 2005.

7.0 Signatures

Report Prepared By:



Ellen E. Seeley
Quality Assurance Chemist

Report Reviewed and Approved By:



William G. Kay II, M.S.
Director of Chemistry

ATTACHMENT A

QUALIFIED ANALYTICAL RESULT FORMS

Sample ID: DP-7.13-15

EPA Method 8290

Client Data

Name: Curtis & Tompkins, Ltd.
 Project: Ft Bragg-Site Assessment
 Date Collected: 6-Apr-06
 Time Collected: 0850

Sample Data

Matrix: Soil
 Sample Size: 10.8 g
 %Solids: 93.8

Laboratory Data

Lab Sample: 27743-001
 QC Batch No.: 8062
 Date Analyzed DB-5: 3-Jun-06
 Date Received: 26-May-06
 Date Extracted: 1-Jun-06
 Date Analyzed DB-225: NA

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0923		US	13C-2,3,7,8-TCDD	78.8	40 - 135	
1,2,3,7,8-PeCDD	ND	0.119			13C-1,2,3,7,8-PeCDD	70.4	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.117			13C-1,2,3,4,7,8-HxCDD	84.8	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.118			13C-1,2,3,6,7,8-HxCDD	79.7	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.113			13C-1,2,3,4,6,7,8-HpCDD	88.5	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.228			13C-OCDD	64.4	40 - 135	
OCDD	ND	0.473			13C-2,3,7,8-TCDF	79.6	40 - 135	
2,3,7,8-TCDF	ND	0.0673			13C-1,2,3,7,8-PeCDF	65.9	40 - 135	
1,2,3,7,8-PeCDF	ND	0.124			13C-2,3,4,7,8-PeCDF	63.7	40 - 135	
2,3,4,7,8-PeCDF	ND	0.125			13C-1,2,3,4,7,8-HxCDF	78.1	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0447			13C-1,2,3,6,7,8-HxCDF	76.6	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0410			13C-2,3,4,6,7,8-HxCDF	76.8	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0431			13C-1,2,3,7,8,9-HxCDF	77.9	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0588			13C-1,2,3,4,6,7,8-HpCDF	77.7	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND	0.0601			13C-1,2,3,4,7,8,9-HpCDF	83.2	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.0674			13C-OCDF	66.6	40 - 135	
OCDF	ND	0.301		US	CRS 37Cl-2,3,7,8-TCDD	77.7	40 - 135	
Totals								
Total TCDD	ND	0.0923		US				
Total PeCDD	ND	0.259						
Total HxCDD	ND	0.116						
Total HpCDD	ND	0.228						
Total TCDF	ND	0.0673						
Total PeCDF	ND	0.124						
Total HxCDF	ND	0.0463						
Total HpCDF	ND	0.0636		US				
Toxic Equivalent Quotient (TEQ) Data^e								
TEQ (Min):	0							
a. Sample specific estimated detection limit.								
b. Estimated maximum possible concentration.								
c. Method detection limit.								
d. Lower control limit - upper control limit.								
e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)								

Analyst: MAS

Approved By: William J. Luksemburg 07-Jun-2006 12:04

Sample ID: DP-4.7-20

EPA Method 8290

Client Data		Sample Data		Laboratory Data			
Name:	Curtis & Tompkins, Ltd.	Matrix:	Soil	Lab Sample:	27743-002		
Project:	Ft Bragg-Site Assessment	Sample Size:	24.2 g	QC Batch No.:	8062		
Date Collected:	17-Apr-06	%Solids:	41.5	Date Analyzed DB-5:	3-Jun-06		
Time Collected:	1025			Dates Analyzed DB-225:	3-Jun-06		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	18.5	J		IS 13C-2,3,7,8-TCDD	76.1	40 - 135	
1,2,3,7,8-PeCDD	17.9			13C-1,2,3,7,8-PeCDD	70.1	40 - 135	
1,2,3,4,7,8-HxCDD	7.72			13C-1,2,3,4,7,8-HxCDD	79.3	40 - 135	
1,2,3,6,7,8-HxCDD	9.99			13C-1,2,3,6,7,8-HxCDD	78.3	40 - 135	
1,2,3,7,8,9-HxCDD	7.92			13C-1,2,3,4,6,7,8-HpCDD	83.0	40 - 135	
1,2,3,4,6,7,8-HpCDD	30.9			13C-OCDD	69.5	40 - 135	
OCDD	48.7			13C-2,3,7,8-TCDF	79.0	40 - 135	
2,3,7,8-TCDF	178			13C-1,2,3,7,8-PeCDF	65.9	40 - 135	
1,2,3,7,8-PeCDF	57.2			13C-2,3,4,7,8-PeCDF	62.3	40 - 135	
2,3,4,7,8-PeCDF	78.9			13C-1,2,3,4,7,8-HxCDF	78.5	40 - 135	
1,2,3,4,7,8-HxCDF	16.7			13C-1,2,3,6,7,8-HxCDF	72.7	40 - 135	
1,2,3,6,7,8-HxCDF	20.6			13C-2,3,4,6,7,8-HxCDF	72.4	40 - 135	
2,3,4,6,7,8-HxCDF	23.6			13C-1,2,3,7,8,9-HxCDF	76.2	40 - 135	
1,2,3,7,8,9-HxCDF	7.82			13C-1,2,3,4,6,7,8-HpCDF	77.9	40 - 135	
1,2,3,4,6,7,8-HpCDF	12.8		B	13C-1,2,3,4,7,8,9-HpCDF	83.8	40 - 135	
1,2,3,4,7,8,9-HpCDF	4.06			13C-OCDF	66.8	40 - 135	
OCDF	4.65		J	CRS 37Cl-2,3,7,8-TCDD	74.1	40 - 135	
Totals							
Total TCDD	326	J		TEQ (Min):	106		
Total PeCDD	199			a. Sample specific estimated detection limit.			
Total HxCDD	117			b. Estimated maximum possible concentration.			
Total HpCDD	54.4			c. Method detection limit.			
Total TCDF	2820			d. Lower control limit - upper control limit.			
Total PeCDF	842		D	e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			
Total HxCDF	209						
Total HpCDF	31.0		B				

Analyst: MAS

Approved By: William J. Luksemburg 07-Jun-2006 12:04

Sample ID: DP-4.7-1

EPA Method 8290

Client Data
 Name: Curtis & Tompkins, Ltd.
 Project: Ft Bragg-Site Assessment
 Date Collected: 17-Apr-06
 Time Collected: 1250

Sample Data
 Matrix: Soil
 Sample Size: 6.34 g
 %Solids: 43.1

Laboratory Data
 Lab Sample: 27743-003
 QC Batch No.: 8062
 Date Analyzed DB-5: 3-Jun-06
 Date Received: 26-May-06
 Date Extracted: 1-Jun-06
 Dates Analyzed DB-225: 3-Jun-06

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	1.62			J	13C-2,3,7,8-TCDD	67.5	40 - 135	
1,2,3,7,8-PeCDD	1.27			J	13C-1,2,3,7,8-PeCDD	58.0	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.792			13C-1,2,3,4,7,8-HxCDD	77.8	40 - 135	
1,2,3,6,7,8-HxCDD	1.20			J	13C-1,2,3,6,7,8-HxCDD	74.6	40 - 135	
1,2,3,7,8,9-HxCDD	1.17			J	13C-1,2,3,4,6,7,8-HpCDD	78.8	40 - 135	
1,2,3,4,6,7,8-HpCDD	21.1				13C-OCDD	62.6	40 - 135	
OCDD	325				13C-2,3,7,8-TCDF	67.7	40 - 135	
2,3,7,8-TCDF	11.0				13C-1,2,3,7,8-PeCDF	55.2	40 - 135	
1,2,3,7,8-PeCDF	ND		3.38		13C-2,3,4,7,8-PeCDF	52.9	40 - 135	
2,3,4,7,8-PeCDF	4.72			J	13C-1,2,3,4,7,8-HxCDF	70.5	40 - 135	
1,2,3,4,7,8-HxCDF	ND		1.43		13C-1,2,3,6,7,8-HxCDF	66.4	40 - 135	
1,2,3,6,7,8-HxCDF	1.38			J	13C-2,3,4,6,7,8-HxCDF	69.0	40 - 135	
2,3,4,6,7,8-HxCDF	1.35			J	13C-1,2,3,7,8,9-HxCDF	71.9	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.596			13C-1,2,3,4,6,7,8-HpCDF	72.7	40 - 135	
1,2,3,4,6,7,8-HpCDF	4.46			J,B	13C-1,2,3,4,7,8,9-HpCDF	75.3	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.446			13C-OCDF	62.7	40 - 135	
OCDF	28.2				CRS 37Cl-2,3,7,8-TCDD	68.2	40 - 135	

Totals		Toxic Equivalent Quotient (TEQ) Data ^e	
TEQ (Min):	7.15	TEQ (Min):	7.15
Total TCDD	15.3		19.7
Total PeCDD	11.5		13.4
Total HxCDD	11.6		
Total HpCDD	39.7		
Total TCDF	184		187
Total PeCDF	47.0		51.0
Total HxCDF	13.9		15.3
Total HpCDF	17.0		

- a. Sample specific estimated detection limit.
- b. Estimated maximum possible concentration.
- c. Method detection limit.
- d. Lower control limit - upper control limit.
- e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)

Analyst: MAS
 Approved By: William J. Luksemburg
 Date: 07-Jun-2006 12:04

Sample ID: DP-4.12-18		EPA Method 8290	
Client Data		Laboratory Data	
Name:	Curtis & Tompkins, Ltd.	Lab Sample:	27743-004
Project:	Ft Bragg-Site Assessment	QC Batch No.:	8062
Date Collected:	18-Apr-06	Date Analyzed DB-5:	3-Jun-06
Time Collected:	0815	Date Analyzed DB-225:	NA
Date Received:	26-May-06	Date Extracted:	1-Jun-06
		Date Analyzed DB-225:	NA
Sample Data		Labeled Standard	
Matrix:	Soil		
Sample Size:	11.6 g		
%Solids:	87.5		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b
2,3,7,8-TCDD	ND	0.175	
1,2,3,7,8-PeCDD	ND	0.245	
1,2,3,4,7,8-HxCDD	ND	0.184	
1,2,3,6,7,8-HxCDD	ND	0.177	
1,2,3,7,8,9-HxCDD	ND	0.372	
1,2,3,4,6,7,8-HpCDD	0.294		
OCDD	0.722		
2,3,7,8-TCDF	0.240		
1,2,3,7,8-PeCDF	ND	0.349	
2,3,4,7,8-PeCDF	ND	0.341	
1,2,3,4,7,8-HxCDF	ND	0.0842	
1,2,3,6,7,8-HxCDF	ND	0.0780	
2,3,4,6,7,8-HxCDF	ND	0.0826	
1,2,3,7,8,9-HxCDF	ND	0.105	
1,2,3,4,6,7,8-HpCDF	ND	0.0652	
1,2,3,4,7,8,9-HpCDF	ND	0.0813	
OCDF	ND	0.267	
Totals			
Total TCDD	ND	0.175	
Total PeCDD	ND	0.314	
Total HxCDD	ND	0.381	
Total HpCDD	0.500		
Total TCDF	1.89		
Total PeCDF	0.0906		
Total HxCDF	0.0798		
Total HpCDF	ND	0.0727	
		%R LCL-UCL^d Qualifiers	
IS	13C-2,3,7,8-TCDD	68.8	40 - 135
	13C-1,2,3,7,8-PeCDD	62.5	40 - 135
	13C-1,2,3,4,7,8-HxCDD	74.3	40 - 135
	13C-1,2,3,6,7,8-HxCDD	68.8	40 - 135
	13C-1,2,3,4,6,7,8-HpCDD	76.0	40 - 135
	13C-OCDD	63.2	40 - 135
	13C-2,3,7,8-TCDF	69.9	40 - 135
	13C-1,2,3,7,8-PeCDF	59.9	40 - 135
	13C-2,3,4,7,8-PeCDF	58.9	40 - 135
	13C-1,2,3,4,7,8-HxCDF	66.4	40 - 135
	13C-1,2,3,6,7,8-HxCDF	64.3	40 - 135
	13C-2,3,4,6,7,8-HxCDF	69.3	40 - 135
	13C-1,2,3,7,8,9-HxCDF	75.9	40 - 135
	13C-1,2,3,4,6,7,8-HpCDF	72.8	40 - 135
	13C-1,2,3,4,7,8,9-HpCDF	75.3	40 - 135
	13C-OCDF	63.6	40 - 135
CRS	37Cl-2,3,7,8-TCDD	71.8	40 - 135
		Toxic Equivalent Quotient (TEQ) Data^e	
TEQ (Min):	0.0270		
a. Sample specific estimated detection limit.			
b. Estimated maximum possible concentration.			
c. Method detection limit.			
d. Lower control limit - upper control limit.			
e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			

Analyst: MAS

Approved By: William J. Luksemburg 07-Jun-2006 12:04

Sample ID: DP-4.10-16		EPA Method 8290	
Client Data		Laboratory Data	
Name: Curtis & Tompkins, Ltd.	Lab Sample: 27743-005	Date Received: 26-May-06	
Project: Ft Bragg-Site Assessment	QC Batch No.: 8062	Date Extracted: 1-Jun-06	
Date Collected: 18-Apr-06	Date Analyzed DB-5: 3-Jun-06	Date Analyzed DB-225: NA	
Time Collected: 1350			
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b
2,3,7,8-TCDD	ND	0.197	Soil
1,2,3,7,8-PeCDD	ND	0.142	12.3 g
1,2,3,4,7,8-HxCDD	ND	0.119	%Solids: 82.6
1,2,3,6,7,8-HxCDD	ND	0.118	
1,2,3,7,8,9-HxCDD	ND	0.115	
1,2,3,4,6,7,8-HpCDD	ND	0.347	
OCDD	0.857		
2,3,7,8-TCDF	0.224		
1,2,3,7,8-PeCDF	ND	0.248	J
2,3,4,7,8-PeCDF	ND	0.232	J
1,2,3,4,7,8-HxCDF	ND	0.0972	
1,2,3,6,7,8-HxCDF	ND	0.0867	
2,3,4,6,7,8-HxCDF	ND	0.0970	
1,2,3,7,8,9-HxCDF	ND	0.134	
1,2,3,4,6,7,8-HpCDF	ND	0.0897	
1,2,3,4,7,8,9-HpCDF	ND	0.106	
OCDF	ND	0.258	
Totals			
Total TCDD	ND	0.197	
Total PeCDD	ND	0.291	0.249
Total HxCDD	ND	0.347	
Total HpCDD	ND	0.240	
Total TCDF	1.82	0.102	
Total PeCDF	ND	0.0970	
Total HxCDF	ND		
Total HpCDF	ND		
Labeled Standard	%R	LCL-UCL^d	Qualifiers
IS 13C-2,3,7,8-TCDD	73.5	40 - 135	
13C-1,2,3,7,8-PeCDD	66.5	40 - 135	
13C-1,2,3,4,7,8-HxCDD	79.0	40 - 135	
13C-1,2,3,6,7,8-HxCDD	74.7	40 - 135	
13C-1,2,3,4,6,7,8-HpCDD	80.9	40 - 135	
13C-OCDD	62.2	40 - 135	
13C-2,3,7,8-TCDF	73.4	40 - 135	
13C-1,2,3,7,8-PeCDF	63.4	40 - 135	
13C-2,3,4,7,8-PeCDF	59.0	40 - 135	
13C-1,2,3,4,7,8-HxCDF	77.6	40 - 135	
13C-1,2,3,6,7,8-HxCDF	77.7	40 - 135	
13C-2,3,4,6,7,8-HxCDF	74.4	40 - 135	
13C-1,2,3,7,8,9-HxCDF	77.5	40 - 135	
13C-1,2,3,4,6,7,8-HpCDF	74.8	40 - 135	
13C-1,2,3,4,7,8,9-HpCDF	75.4	40 - 135	
13C-OCDF	63.6	40 - 135	
CRS 37Cl-2,3,7,8-TCDD	78.7	40 - 135	
Toxic Equivalent Quotient (TEQ) Data ^e			
TEQ (Min):	0.0225		
a. Sample specific estimated detection limit.			
b. Estimated maximum possible concentration.			
c. Method detection limit.			
d. Lower control limit - upper control limit.			
e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)			

Analyst: MAS
 Approved By: William J. Luksemburg 07-Jun-2006 12:04

Sample ID: DP-4.15-10

EPA Method 8290

Client Data
 Name: Curtis & Tompkins, Ltd.
 Project: Ft Bragg-Site Assessment
 Date Collected: 20-Apr-06
 Time Collected: 1355

Sample Data
 Matrix: Soil
 Sample Size: 11.9 g
 %Solids: 84.1

Laboratory Data
 Lab Sample: 27743-006
 QC Batch No.: 8062
 Date Analyzed DB-5: 3-Jun-06
 Date Received: 26-May-06
 Date Extracted: 1-Jun-06
 Date Analyzed DB-225: NA

Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d	Qualifiers
2,3,7,8-TCDD	ND	0.0974			13C-2,3,7,8-TCDD	76.7	40 - 135	
1,2,3,7,8-PeCDD	ND	0.132			13C-1,2,3,7,8-PeCDD	67.2	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.201			13C-1,2,3,4,7,8-HxCDD	79.9	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.200			13C-1,2,3,6,7,8-HxCDD	74.5	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.194			13C-1,2,3,4,6,7,8-HpCDD	82.5	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND		0.265		13C-OCDD	69.2	40 - 135	
OCDD	0.950			J	13C-2,3,7,8-TCDF	75.1	40 - 135	
2,3,7,8-TCDF	ND	0.0861			13C-1,2,3,7,8-PeCDF	63.9	40 - 135	
1,2,3,7,8-PeCDF	ND	0.104			13C-2,3,4,7,8-PeCDF	63.3	40 - 135	
2,3,4,7,8-PeCDF	ND	0.0976			13C-1,2,3,4,7,8-HxCDF	76.9	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0563			13C-1,2,3,6,7,8-HxCDF	76.0	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0514			13C-2,3,4,6,7,8-HxCDF	77.3	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0527			13C-1,2,3,7,8,9-HxCDF	77.0	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.0809			13C-1,2,3,4,6,7,8-HpCDF	76.5	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND	0.0818			13C-1,2,3,4,7,8,9-HpCDF	79.1	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.0975			13C-OCDF	69.4	40 - 135	
OCDF	ND	0.444			CRS 37Cl-2,3,7,8-TCDD	76.6	40 - 135	

Toxic Equivalent Quotient (TEQ) Data^e

Total TCDD	ND				TEQ (Min): 0.0000950
Total PeCDD	ND	0.207	0.115		
Total HxCDD	ND	0.198			
Total HpCDD	ND		0.265		
Total TCDF	ND	0.144			
Total PeCDF	ND	0.179			
Total HxCDF	ND	0.0592			
Total HpCDF	ND	0.0890			

a. Sample specific estimated detection limit.
 b. Estimated maximum possible concentration.
 c. Method detection limit.
 d. Lower control limit - upper control limit.
 e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHIO)

Analyst: MAS

Approved By: William J. Luksemburg 07-Jun-2006 12:04

ATTACHMENT B

SUPPORTING DOCUMENTATION

PCDD/PCDF Analyses Support Documentation

Veridian Project Name: Georgia Pacific - Ft. Bragg Site Assessment
 Sample Collection Dates: 4/6, 4/17, 4/18, 4/20/06
 Client: Acton Mickelson Environmental, Inc.
 Project Manager: Jeff Heglie
 Laboratory: Alta Analytical Laboratory, Inc.

Reviewed By: E. Seelby
 Approved By: WGK
 Completion Date: 7/10/06

Deliverables: Level II

SDG: 07743
 *Refer to Table in QA Report for Applicable Sample No's.

The following table indicates criteria which were examined, the identified problems, and support documentation attachments.

Criteria Examined in Detail	Problems Identified	Support Documentation Attachments
Check if Yes or Footnote Letter for Comments Below	Check if Yes or Footnote Number for Comments Below	Check if Yes or Identify Attachment No
PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290	PCDD/PCDF by U.S. EPA Method 8290
Analytical Holding Times	(1)	✓
Sample Condition Upon Receipt at Subcontract Laboratory	✓	✓
Laboratory Method Blank Results	(2)	✓
Ongoing Precision and Recovery Sample Results	✓	✓
Internal Standard Recoveries	✓	✓
Cleanup Standard Recoveries	✓	✓
Identification of Target Compounds	(3)	✓
Verification of the EDD in XLS Format	✓	✓

Comments:

(1) Samples were found to be subject to holding times above the acceptable range.

(2) 1,2,3,4,6,7,8 - HpCDF was present in the Method Blank.

(3) Sample concentrations were below the calibration range of the instrument. Also, diphenylether interference was observed in one or more samples.

Curtis & Tompkins SDG: 187069

Method Blank				EPA Method 8290			
Matrix:	Soil	QC Batch No.:	8062	Lab Sample:	0-MB001	Date Analyzed DB-5:	3-Jun-06
Sample Size:	10.0 g	Date Extracted:	1-Jun-06	Date Analyzed DB-225:	NA		
Analyte	Conc. (pg/g)	DL ^a	EMPC ^b	Qualifiers	Labeled Standard	%R	LCL-UCL ^d Qualifiers
2,3,7,8-TCDD	ND	0.105			13C-2,3,7,8-TCDD	77.7	40 - 135
1,2,3,7,8-PeCDD	ND	0.107			13C-1,2,3,7,8-PeCDD	71.7	40 - 135
1,2,3,4,7,8-HxCDD	ND	0.0975			13C-1,2,3,4,7,8-HxCDD	86.5	40 - 135
1,2,3,6,7,8-HxCDD	ND	0.100			13C-1,2,3,6,7,8-HxCDD	79.4	40 - 135
1,2,3,7,8,9-HxCDD	ND	0.0955			13C-1,2,3,4,6,7,8-HpCDD	95.1	40 - 135
1,2,3,4,6,7,8-HpCDD	ND	0.189			13C-OCDD	87.4	40 - 135
OCDD	ND	0.551			13C-2,3,7,8-TCDF	72.7	40 - 135
2,3,7,8-TCDF	ND	0.120			13C-1,2,3,7,8-PeCDF	62.1	40 - 135
1,2,3,7,8-PeCDF	ND	0.141			13C-2,3,4,7,8-PeCDF	61.3	40 - 135
2,3,4,7,8-PeCDF	ND	0.132			13C-1,2,3,4,7,8-HxCDF	78.1	40 - 135
1,2,3,4,7,8-HxCDF	ND	0.110			13C-1,2,3,6,7,8-HxCDF	86.3	40 - 135
1,2,3,6,7,8-HxCDF	ND	0.0939			13C-2,3,4,6,7,8-HxCDF	83.5	40 - 135
2,3,4,6,7,8-HxCDF	ND	0.0426			13C-1,2,3,7,8,9-HxCDF	79.4	40 - 135
1,2,3,7,8,9-HxCDF	ND	0.0653			13C-1,2,3,4,6,7,8-HpCDF	81.9	40 - 135
1,2,3,4,6,7,8-HpCDF	0.172			J	13C-1,2,3,4,7,8,9-HpCDF	82.8	40 - 135
1,2,3,4,7,8,9-HpCDF	ND	0.0766			13C-OCDF	78.0	40 - 135
OCDF	ND	0.402			CRS 37Cl-2,3,7,8-TCDD	80.9	40 - 135
Totals							
Total TCDD	ND	0.105			TEQ (Min):	0.00172	
Total PeCDD	ND	0.343			a. Sample specific estimated detection limit.		
Total HxCDD	ND	0.0979			b. Estimated maximum possible concentration.		
Total HpCDD	ND	0.189			c. Method detection limit.		
Total TCDF	ND	0.120			d. Lower control limit - upper control limit.		
Total PeCDF	ND	0.136			e. TEQ based on (1997) World Health Organization Toxic Equivalent Factors (WHO)		
Total HxCDF	ND		0.0824				
Total HpCDF	0.172						

Analyst: MAS

Approved By:

William J. Luksemburg 07-Jun-2006 12:04

EPA Method 8290

OPR Results

Matrix: Soil	QC Batch No.: 8062	Lab Sample: 0-OPR001			
Sample Size: 10.0 g	Date Extracted: 1-Jun-06	Date Analyzed DB-5: 3-Jun-06			
		Date Analyzed DB-225: NA			
Analyte	Spike Conc. (ng/mL)	OPR Limits	Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	10.0	7 - 13	<u>IS</u> 13C-2,3,7,8-TCDD	72.0	40 - 135
1,2,3,7,8-PeCDD	50.0	35 - 65	13C-1,2,3,7,8-PeCDD	71.2	40 - 135
1,2,3,4,7,8-HxCDD	50.0	35 - 65	13C-1,2,3,4,7,8-HxCDD	83.0	40 - 135
1,2,3,6,7,8-HxCDD	50.0	35 - 65	13C-1,2,3,6,7,8-HxCDD	76.0	40 - 135
1,2,3,7,8,9-HpCDD	50.0	35 - 65	13C-1,2,3,4,6,7,8-HpCDD	79.3	40 - 135
1,2,3,4,6,7,8-HpCDD	50.0	35 - 65	13C-OCDD	61.7	40 - 135
OCDD	100	70 - 130	13C-2,3,7,8-TCDF	68.1	40 - 135
2,3,7,8-TCDF	10.0	7 - 13	13C-1,2,3,7,8-PeCDF	63.8	40 - 135
1,2,3,7,8-PeCDF	50.0	35 - 65	13C-2,3,4,7,8-PeCDF	61.6	40 - 135
2,3,4,7,8-PeCDF	50.0	35 - 65	13C-1,2,3,4,7,8-HxCDF	73.3	40 - 135
1,2,3,4,7,8-HxCDF	50.0	35 - 65	13C-1,2,3,6,7,8-HxCDF	78.3	40 - 135
1,2,3,6,7,8-HxCDF	50.0	35 - 65	13C-2,3,4,6,7,8-HxCDF	77.6	40 - 135
2,3,4,6,7,8-HxCDF	50.0	35 - 65	13C-1,2,3,7,8,9-HxCDF	73.2	40 - 135
1,2,3,7,8,9-HxCDF	50.0	35 - 65	13C-1,2,3,4,6,7,8-HpCDF	71.9	40 - 135
1,2,3,4,6,7,8-HpCDF	50.0	35 - 65	13C-1,2,3,4,7,8,9-HpCDF	75.3	40 - 135
1,2,3,4,7,8,9-HpCDF	50.0	35 - 65	13C-OCDF	62.6	40 - 135
OCDF	100	70 - 130	<u>CRS</u> 37Cl-2,3,7,8-TCDD	72.3	40 - 135

Analyst: MAS

Approved By:

William J. Luksemburg 07-Jun-2006 11:35

ATTACHMENT C

COVER LETTER AND

CHAIN-OF-CUSTODY RECORD

June 07, 2006

Alta Project I.D.: 27743

Ms. Lisa Brooker
Curtis & Tompkins, Ltd.
2323 Fifth Street
Berkeley, CA 94710

Dear Ms. Brooker,

Enclosed are the results for the six soil samples received at Alta Analytical Laboratory on May 26, 2006 under your Project Name "Ft Bragg-Site Assessment". These samples were extracted and analyzed using EPA Method 8290 for tetra-through-octa chlorinated dioxins and furans. A standard turnaround time was provided for this work.

The following report consists of a Sample Inventory (Section I), Analytical Results (Section II) and the Appendix, which contains the chain-of-custody, a list of data qualifiers and abbreviations, Alta's current certifications, and copies of the raw data (if requested).

Alta Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-933-1640 or by email at mmaier@altalab.com. Thank you for choosing Alta as part of your analytical support team.

Sincerely,

Martha M. Maier
Director of HRMS Services



Alta Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. This report should not be reproduced except in full without the written approval of A.L.L.



Section I: Sample Inventory Report

Date Received: 5/26/2006

<u>Alta Lab. ID</u>	<u>Client Sample ID</u>
27743-001	DP-7.13-15
27743-002	DP-4.7-20
27743-003	DP-4.7-1
27743-004	DP-4.12-18
27743-005	DP-4.10-16
27743-006	DP-4.15-10

Curtis & Tompkins, Ltd.
 Analytical Laboratories, Since 1878
 2323 Fifth Street
 Berkeley, CA 94710
 (510) 486-0900
 (510) 486-0532

27743

0.5°C

Project Number: 187069
 Site: Ft Bragg-Site Assessment

Subcontract Laboratory:
 Alta Analytical Lab, Inc.
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 933-1640
 ATTN: Martha

Results due: Report Level: II

Please send report to: Lisa Brooker

*** Please report using Sample ID rather than C&T Lab #.

Sample ID	Sampled	Matrix	Analysis	C&T Lab #	Comments
DP-7.13-15	04/06 08:50	Soil	8290	• 186053-002	
DP-4.7-20	04/17 10:25	Soil	8290	' 186230-003	
P-4.7-1	04/17 12:50	Soil	8290	' 186230-007	
P-4.12-18	04/18 08:15	Soil	8290	' 186277-002	
DP-4.10-16	04/18 13:50	Soil	8290	' 186277-008	
DP-4.15-10	04/20 13:55	Soil	8290	' 186320-008	

Please provide EDD

Notes:	Relinquished By:	Received By:
	<i>[Signature]</i>	<i>[Signature]</i>
	Date/Time: 5-25-06 5:55 pm	Date/Time: 5/26/06 0935

Signature on this form constitutes a firm Purchase Order for the services requested above.

SAMPLE LOG-IN CHECKLIST

Alta Project #: 27743

Samples Arrival:	Date/Time 5/26/06 0935	Initials: BBB	Location: WR-2
			Shelf/Rack: _____
Logged In:	Date/Time 5/26/06 1600 BBB	Initials: BBB	Location: WR-2
			Shelf/Rack: D-4
Delivered By:	FedEx	UPS	Cal
			DHL
			Hand Delivered
			Other
Preservation:	Ice	Blue Ice	Dry Ice
			None
Temp °C	0.5	Time: 0945	Thermometer ID: DT-20

	YES	NO	NA
* Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Shipping Documentation Present?	✓		
Airbill	✓		
Trk #	C10129000027444		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓
Na ₂ S ₂ O ₃ Preservation Documented?		COC	Sample Container
			None
Shipping Container	Alta	Client	Retain
			Return
			Dispose

Comments:

Samples recieved in clear plastic core tubes

* Sample "DP-4.7-1. (low volume)